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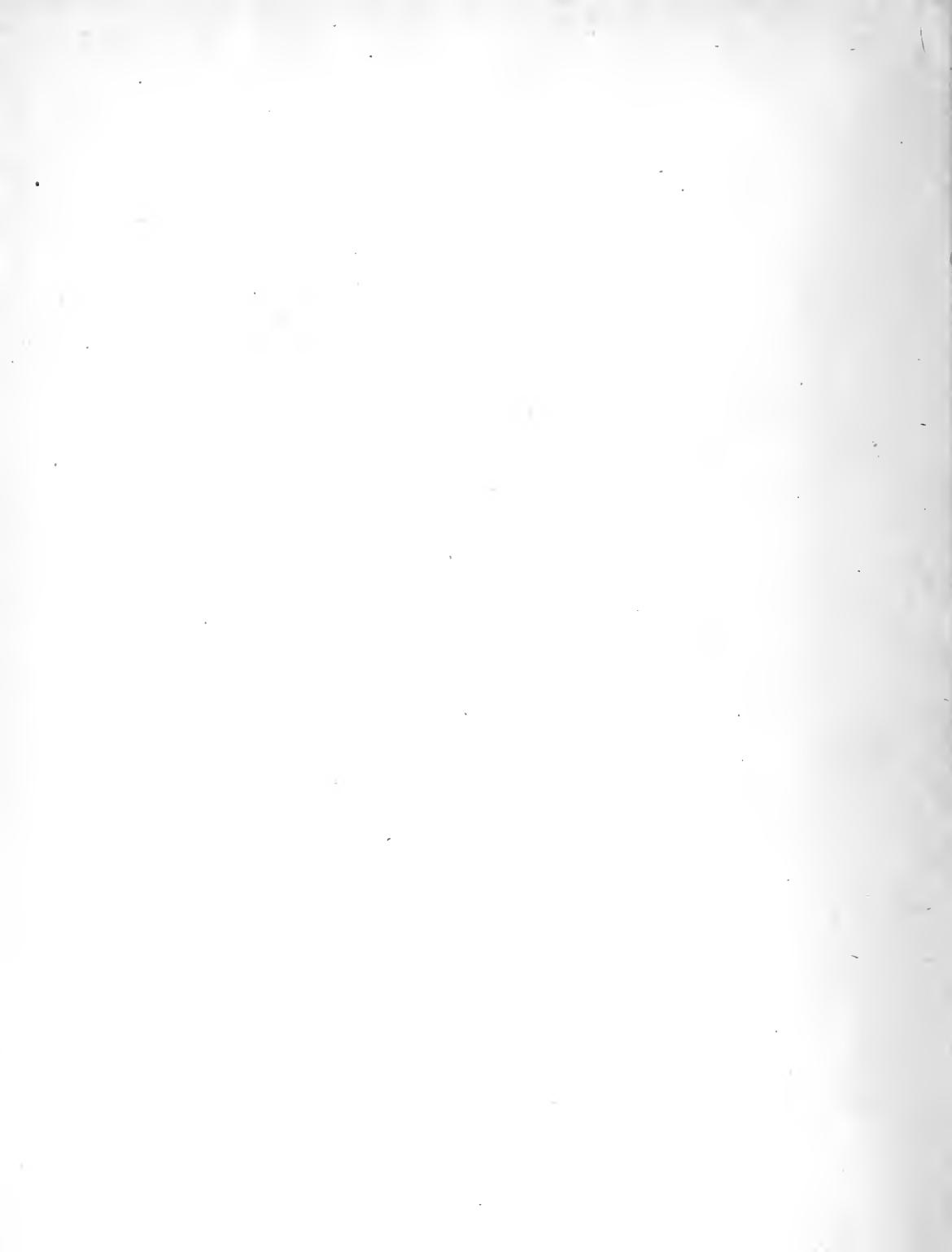
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MONOGRAPHS

OF THE

UNITED STATES GEOLOGICAL SURVEY

VOLUME XV—PLATES



WASHINGTON
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1889



Map
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plates

UNITED STATES GEOLOGICAL SURVEY

J. W. POWELL, DIRECTOR

THE POTOMAC

OR

YOUNGER MESOZOIC FLORA

BY

WILLIAM MORRIS FONTAINE



WASHINGTON
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1889

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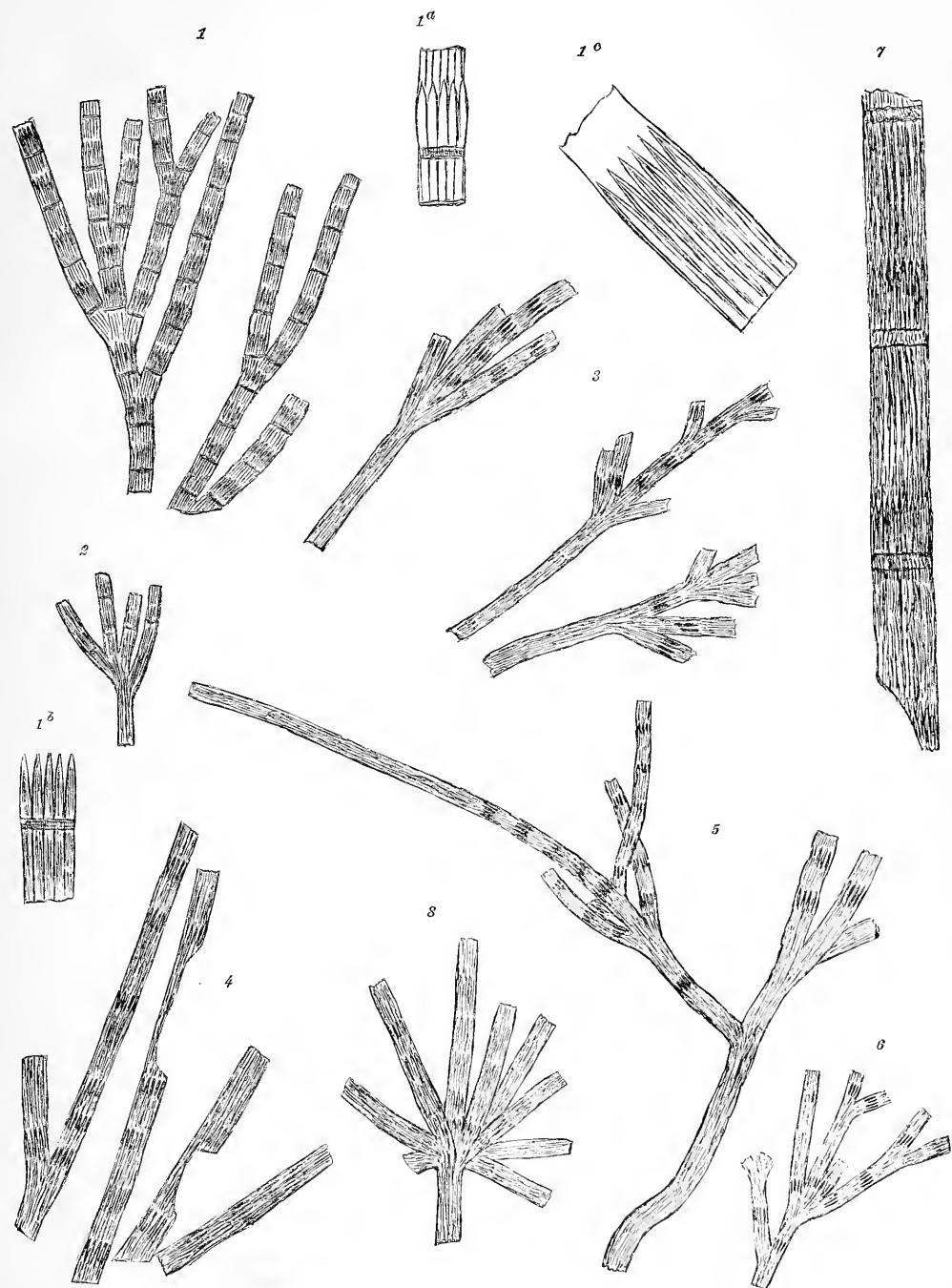


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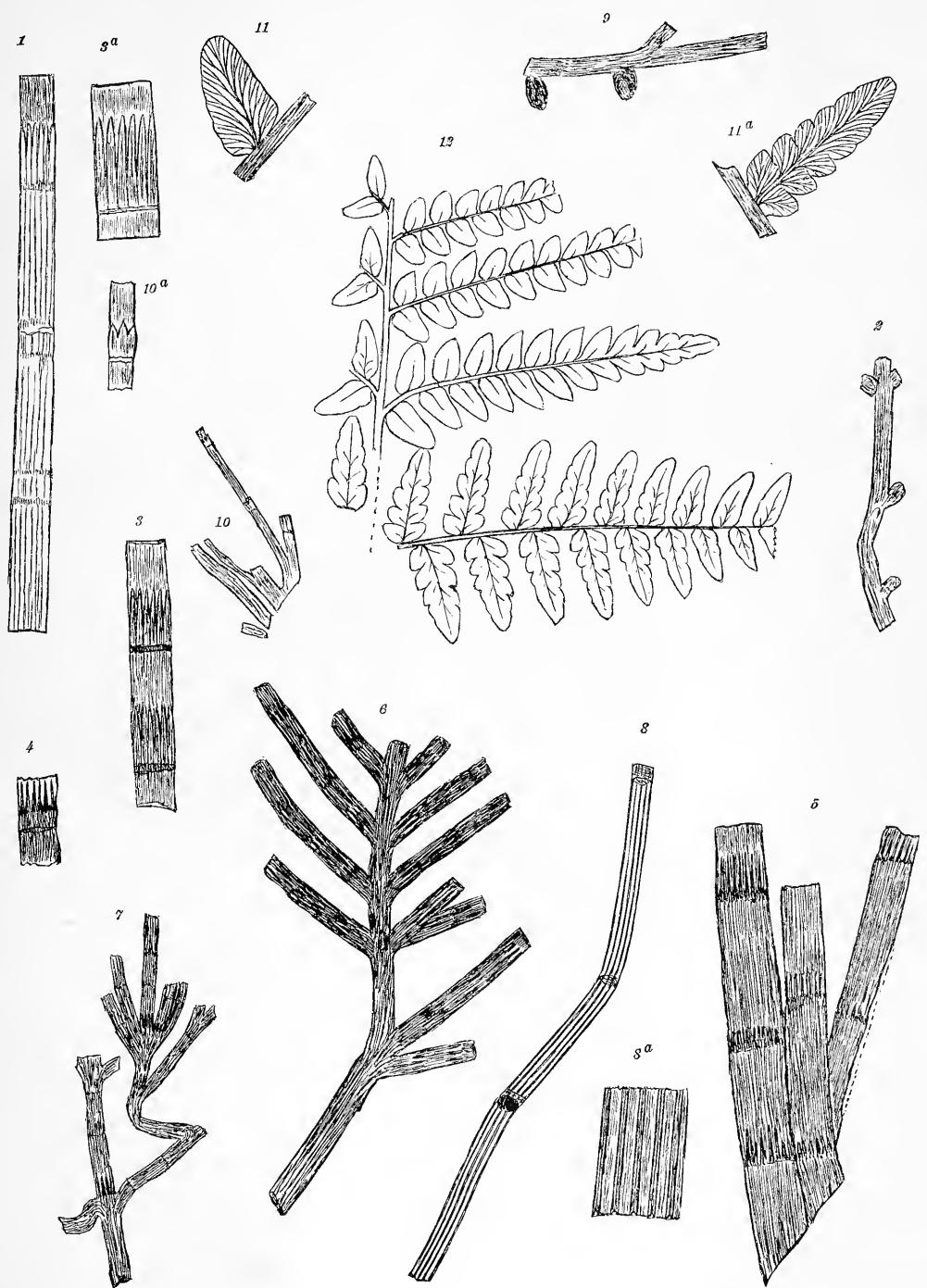


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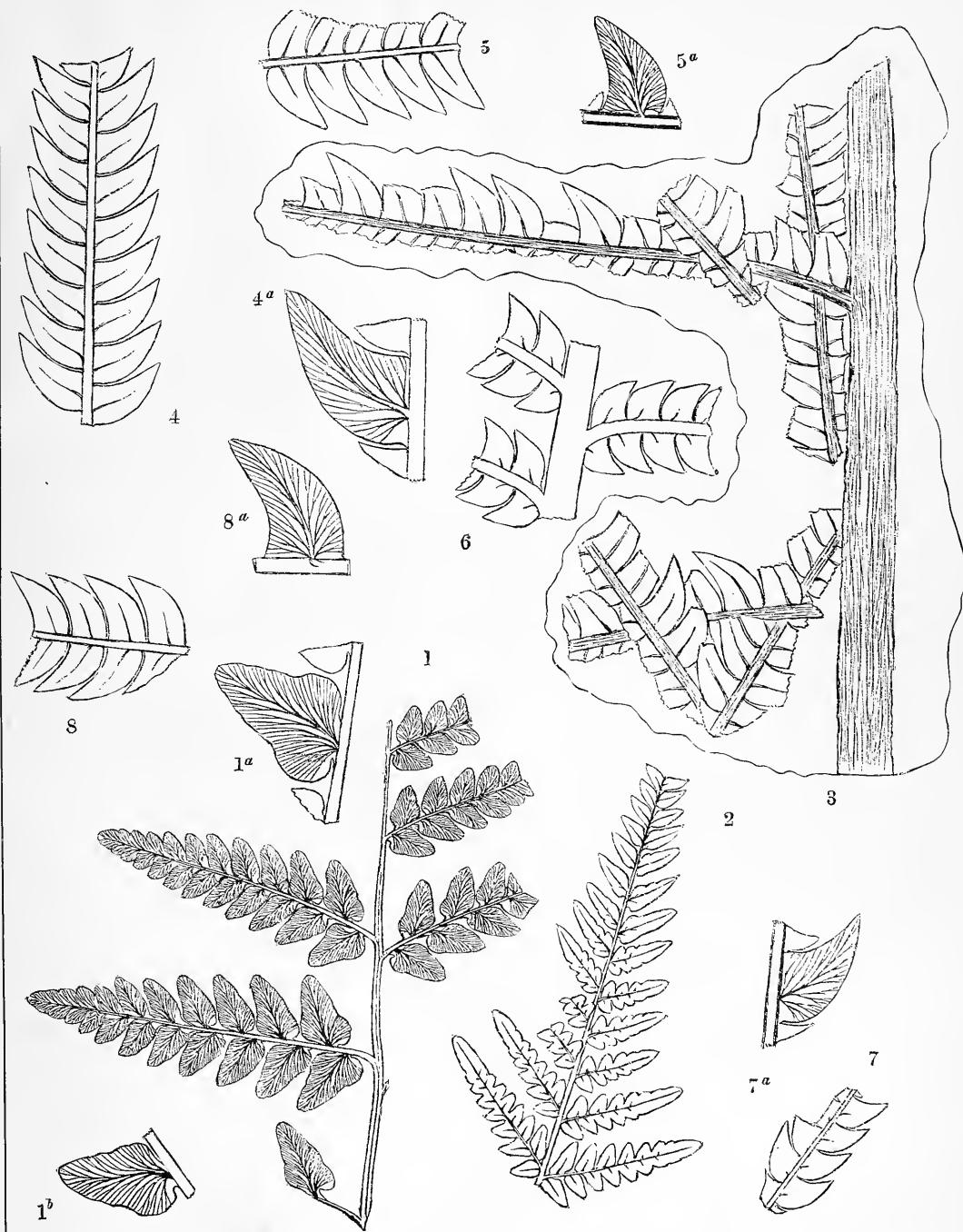


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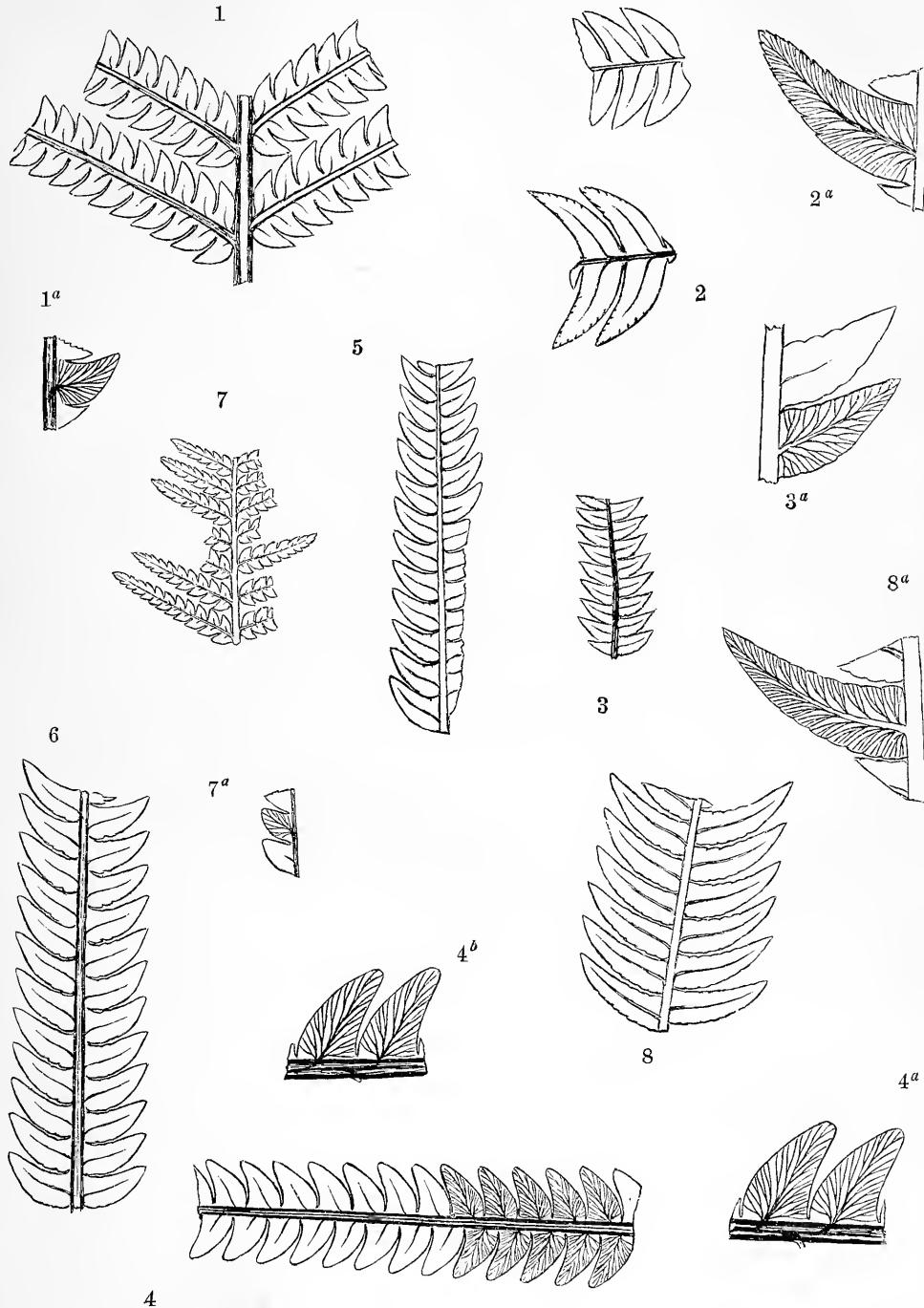


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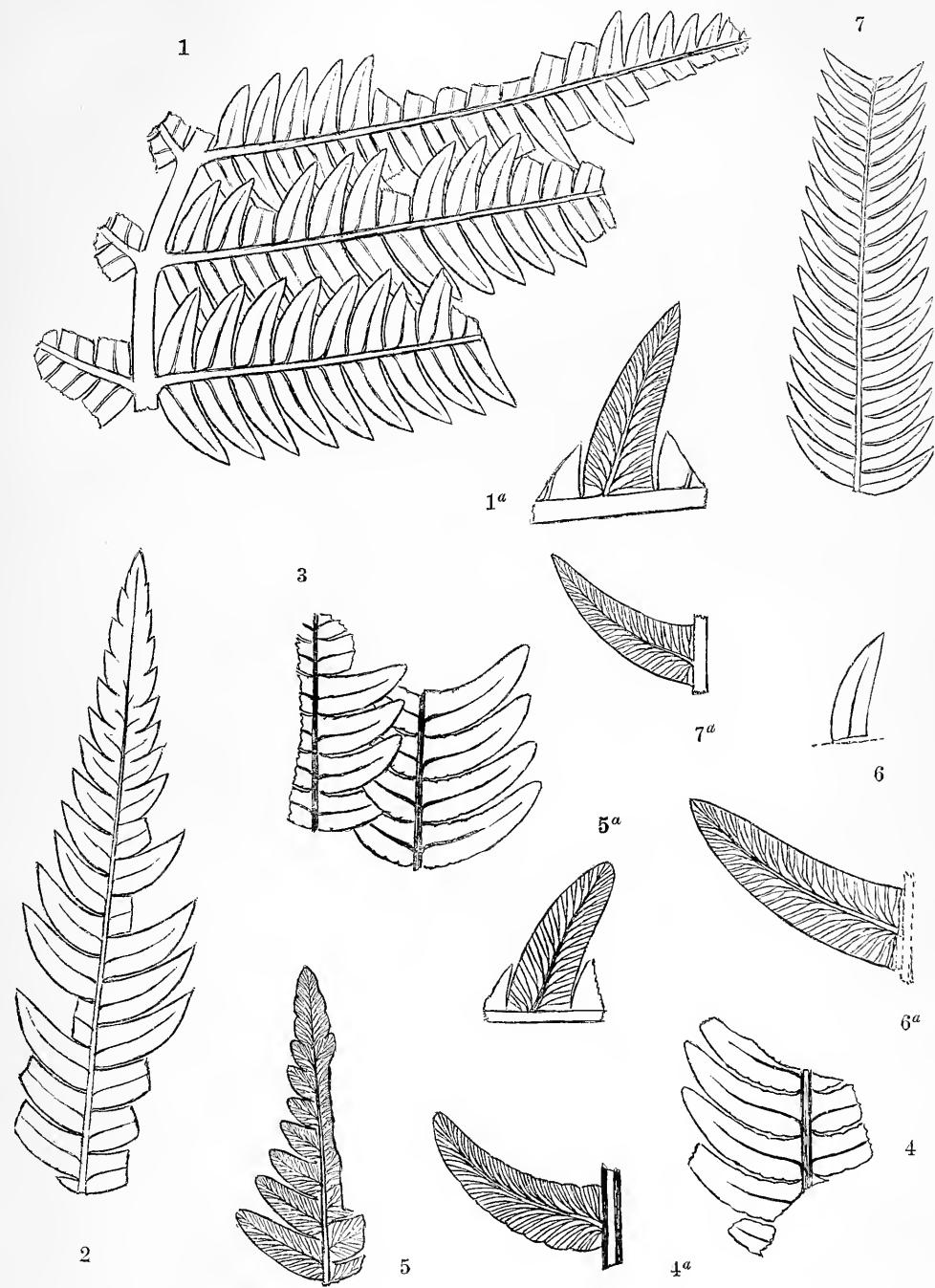


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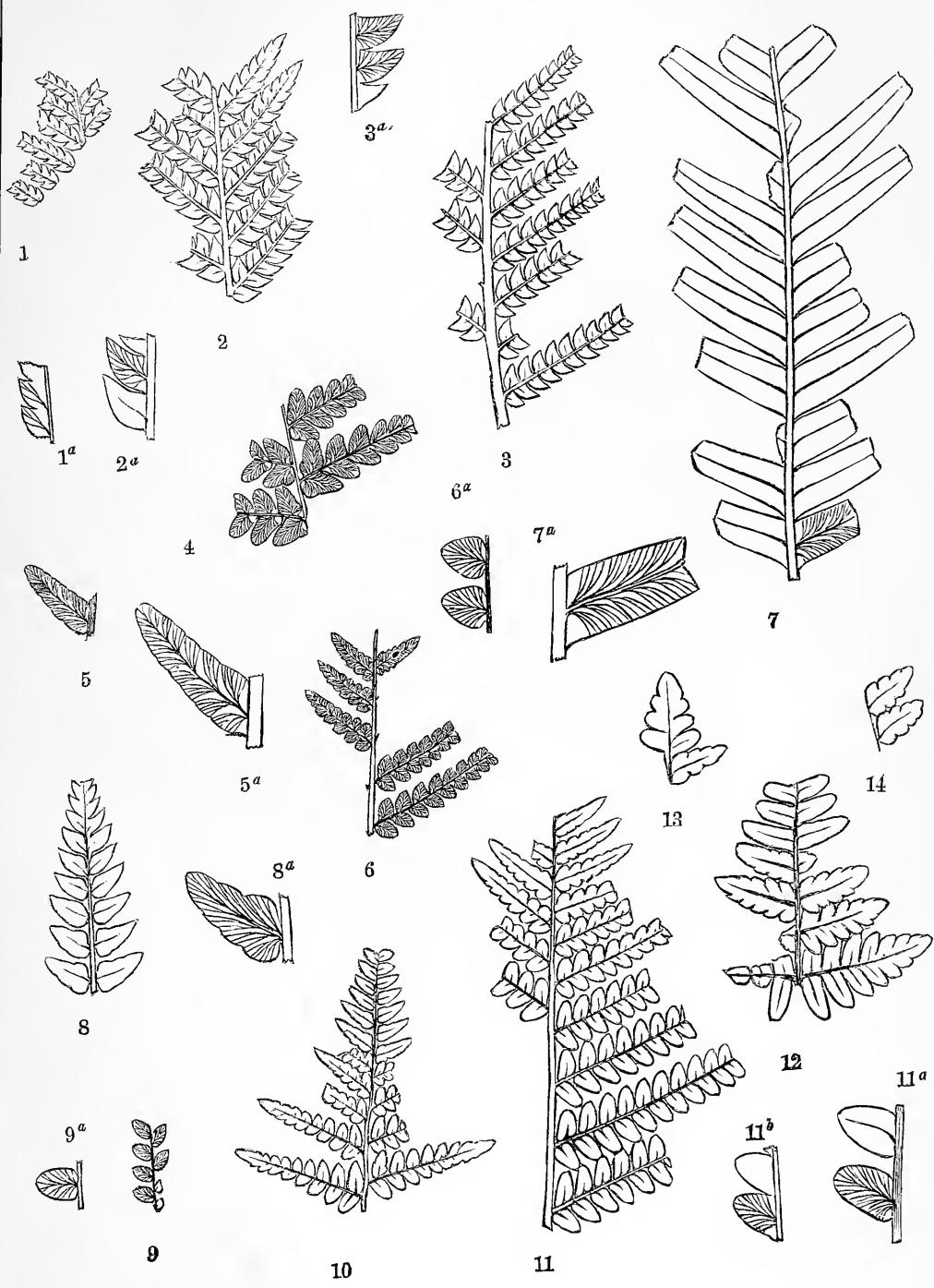


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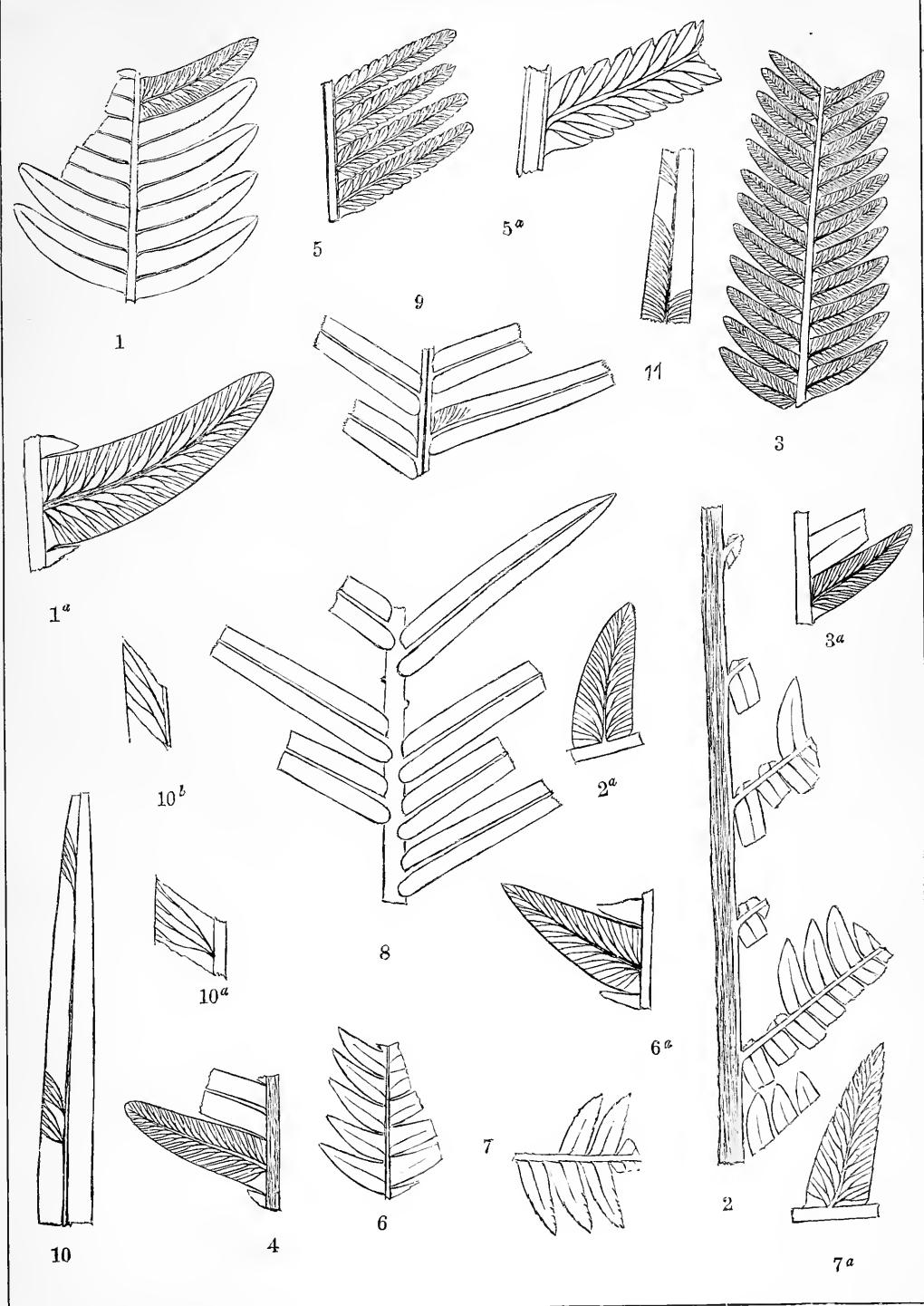


PLATE VIII.

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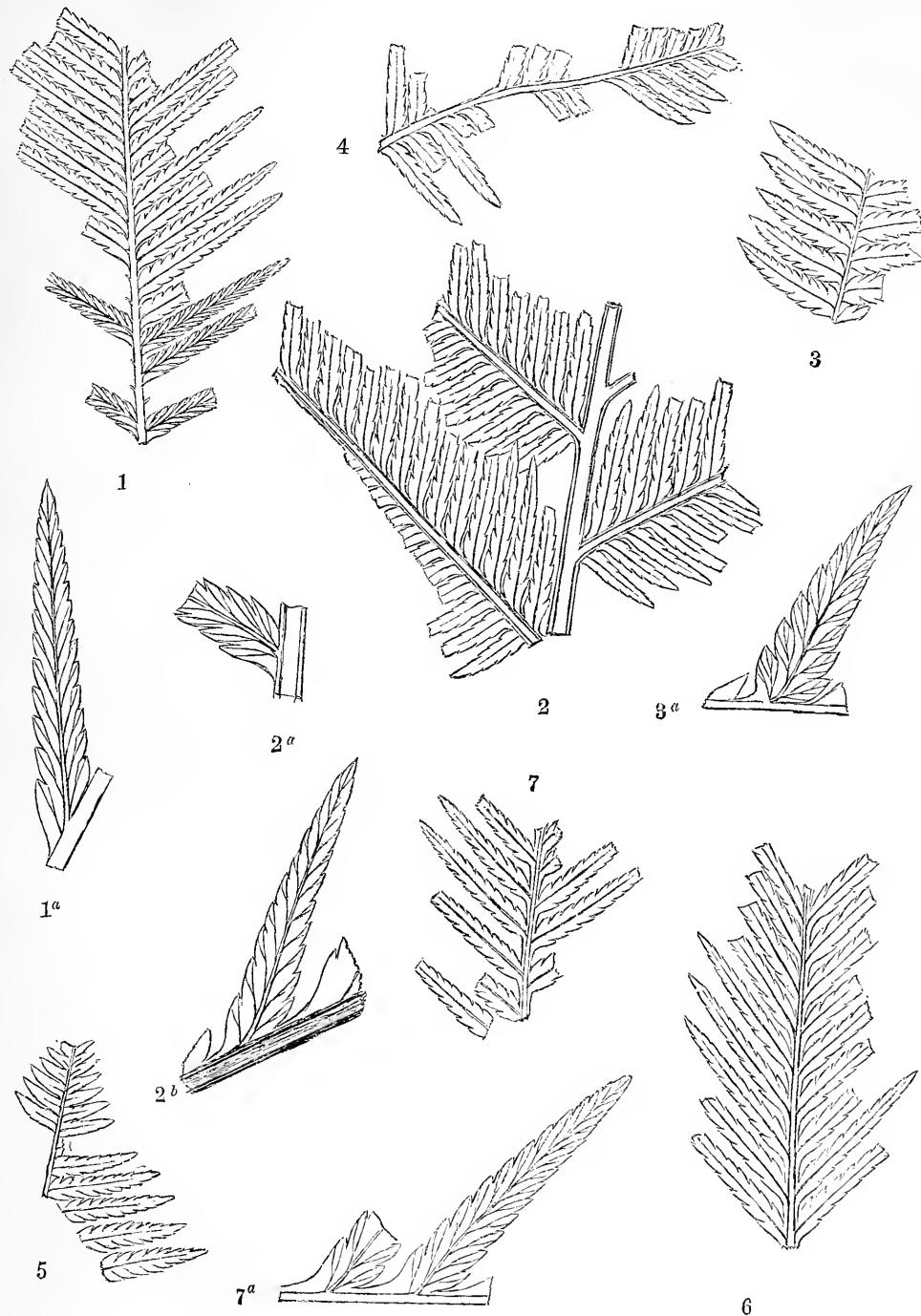


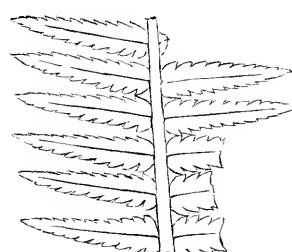
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1



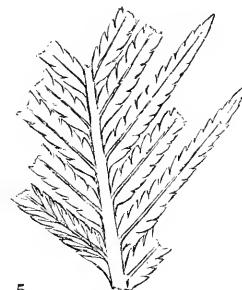
2

2^a

3

1^a

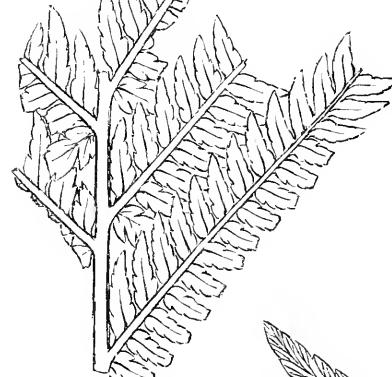
4



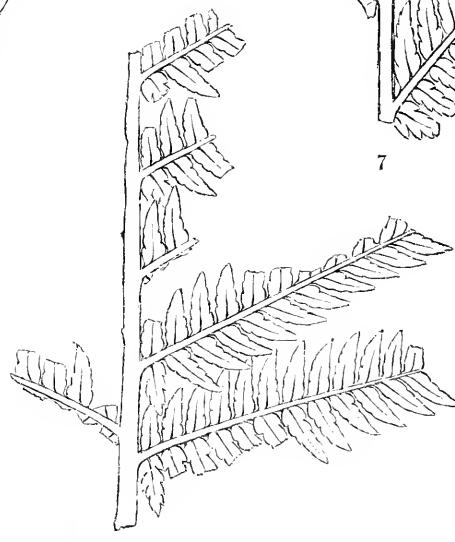
5



6



7

7^a8^a

8



9

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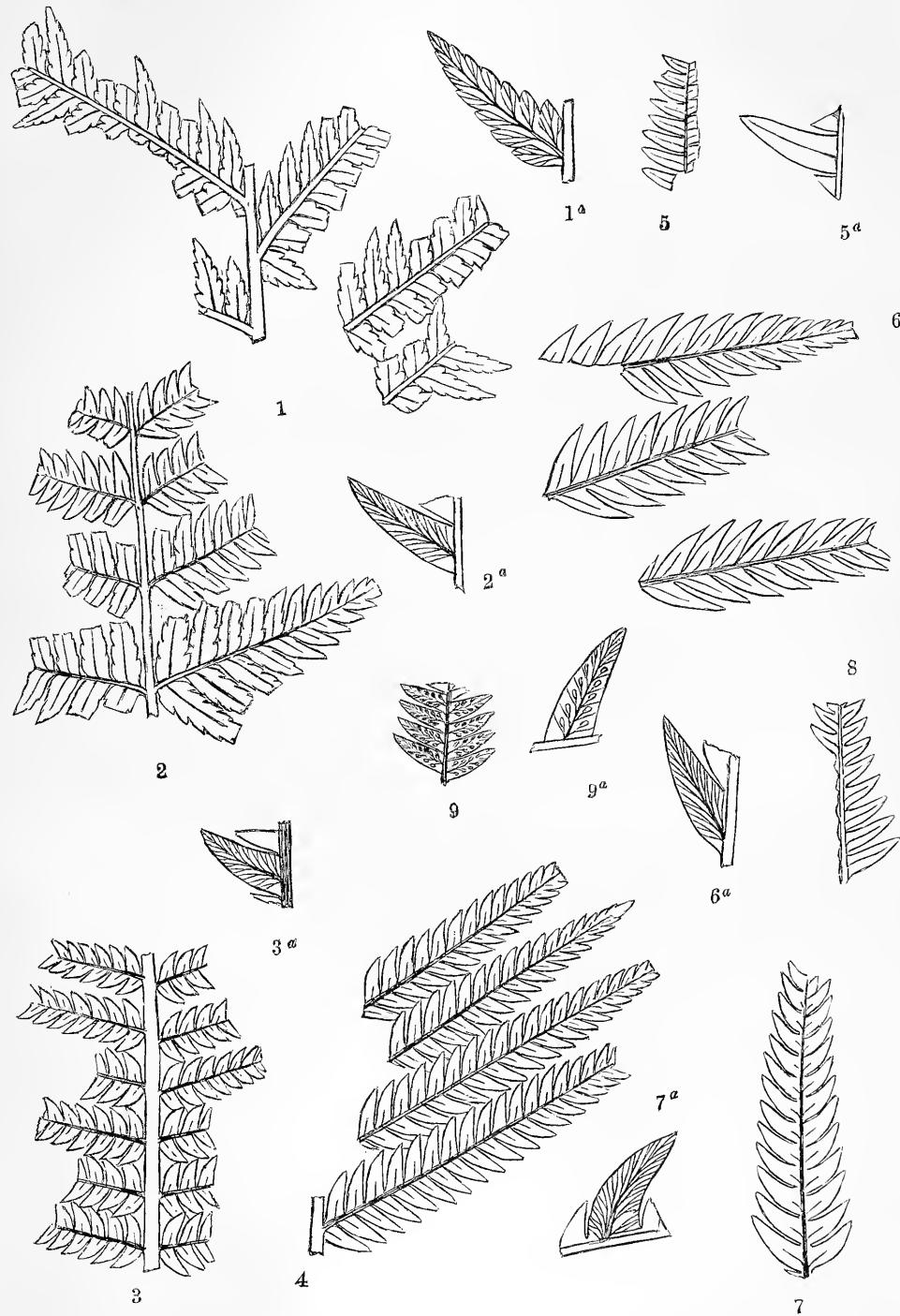


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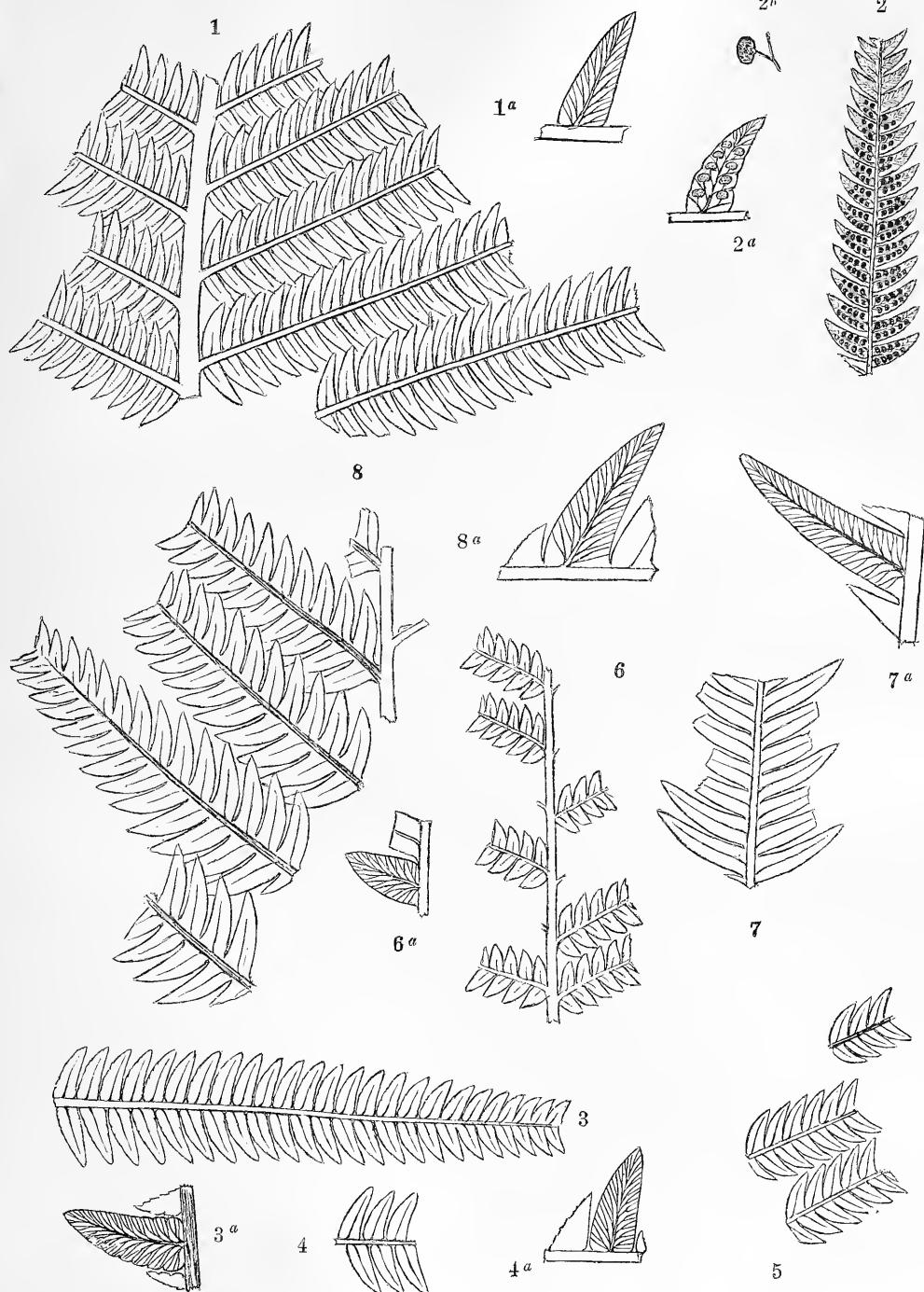


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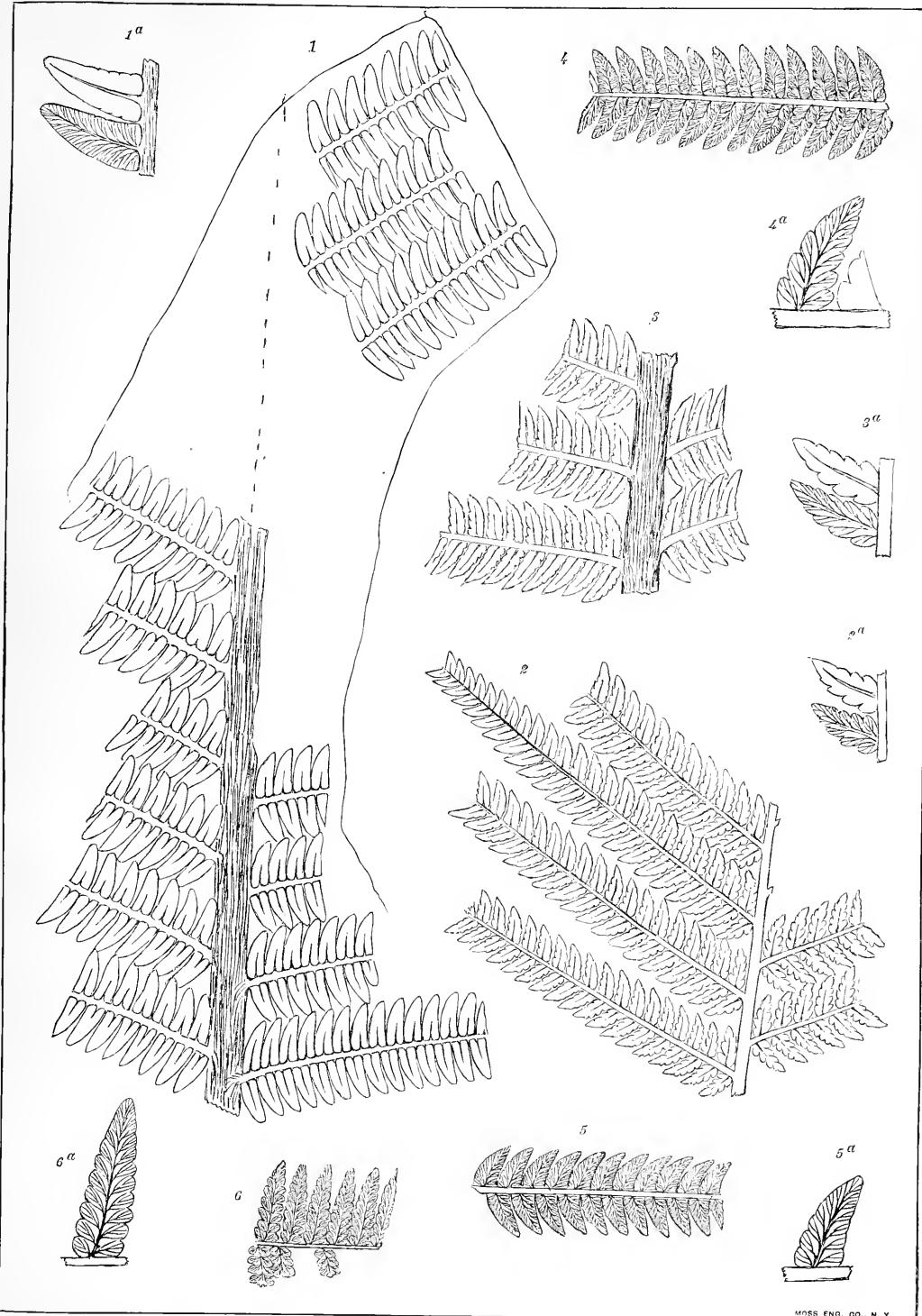


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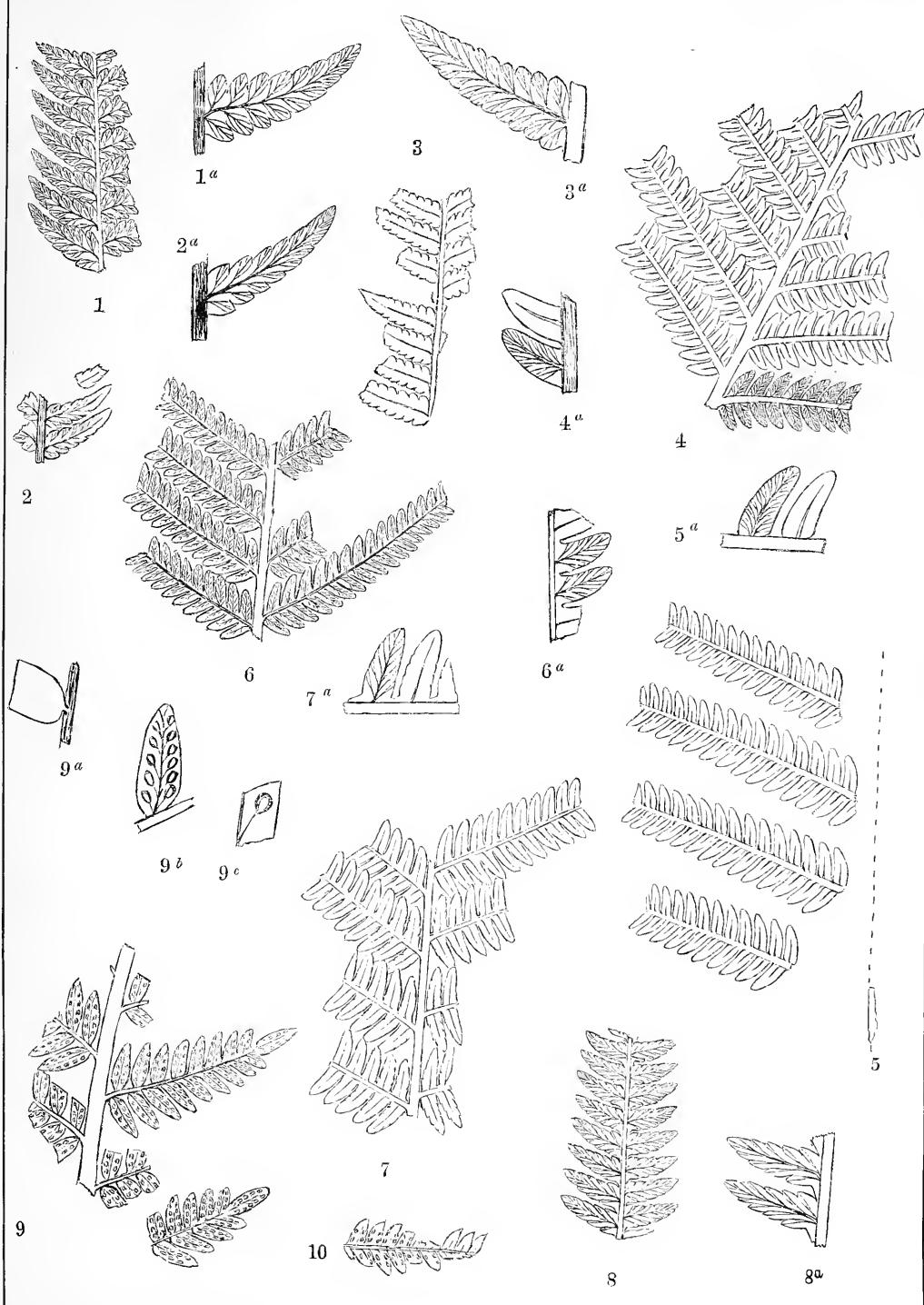


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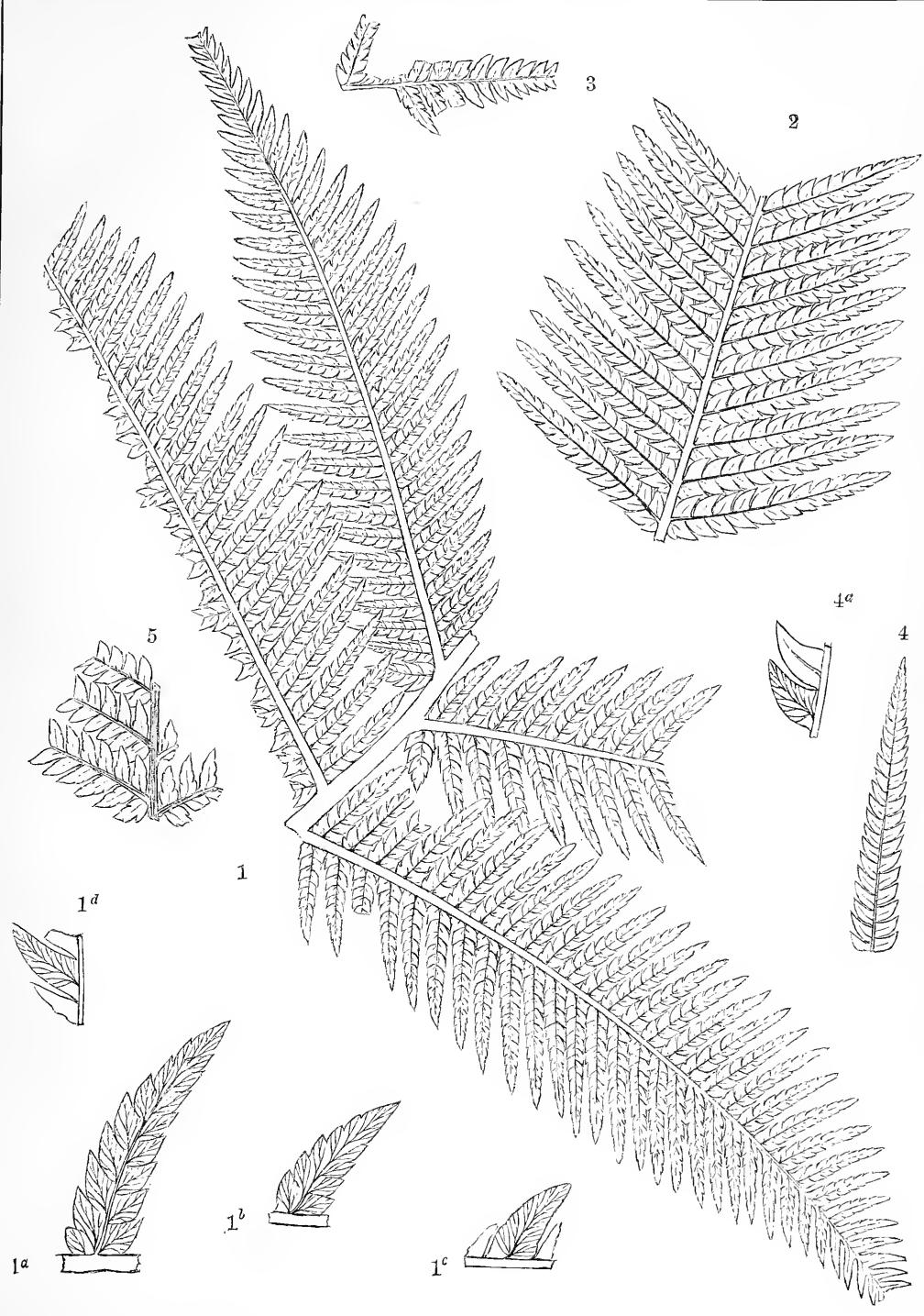




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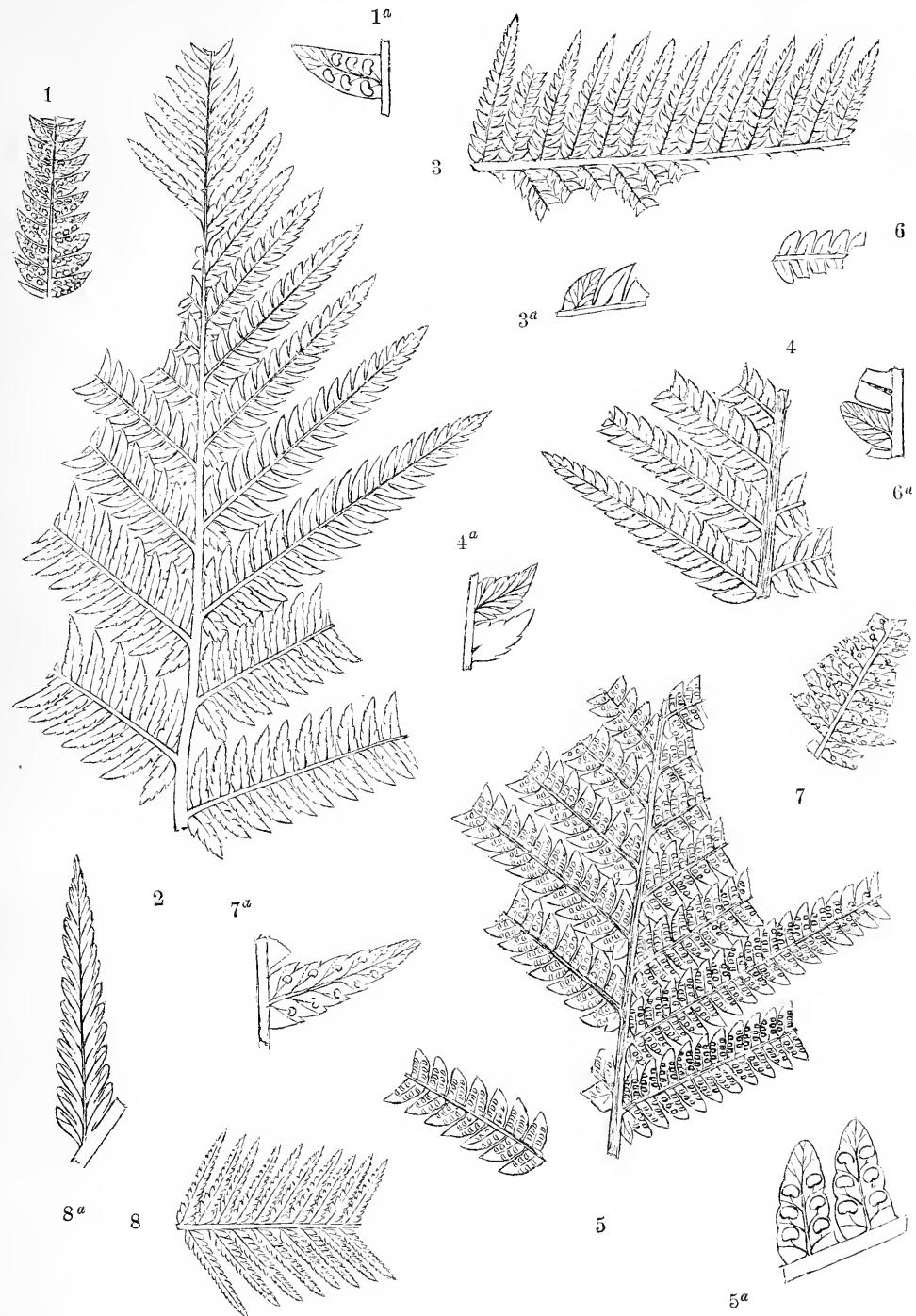


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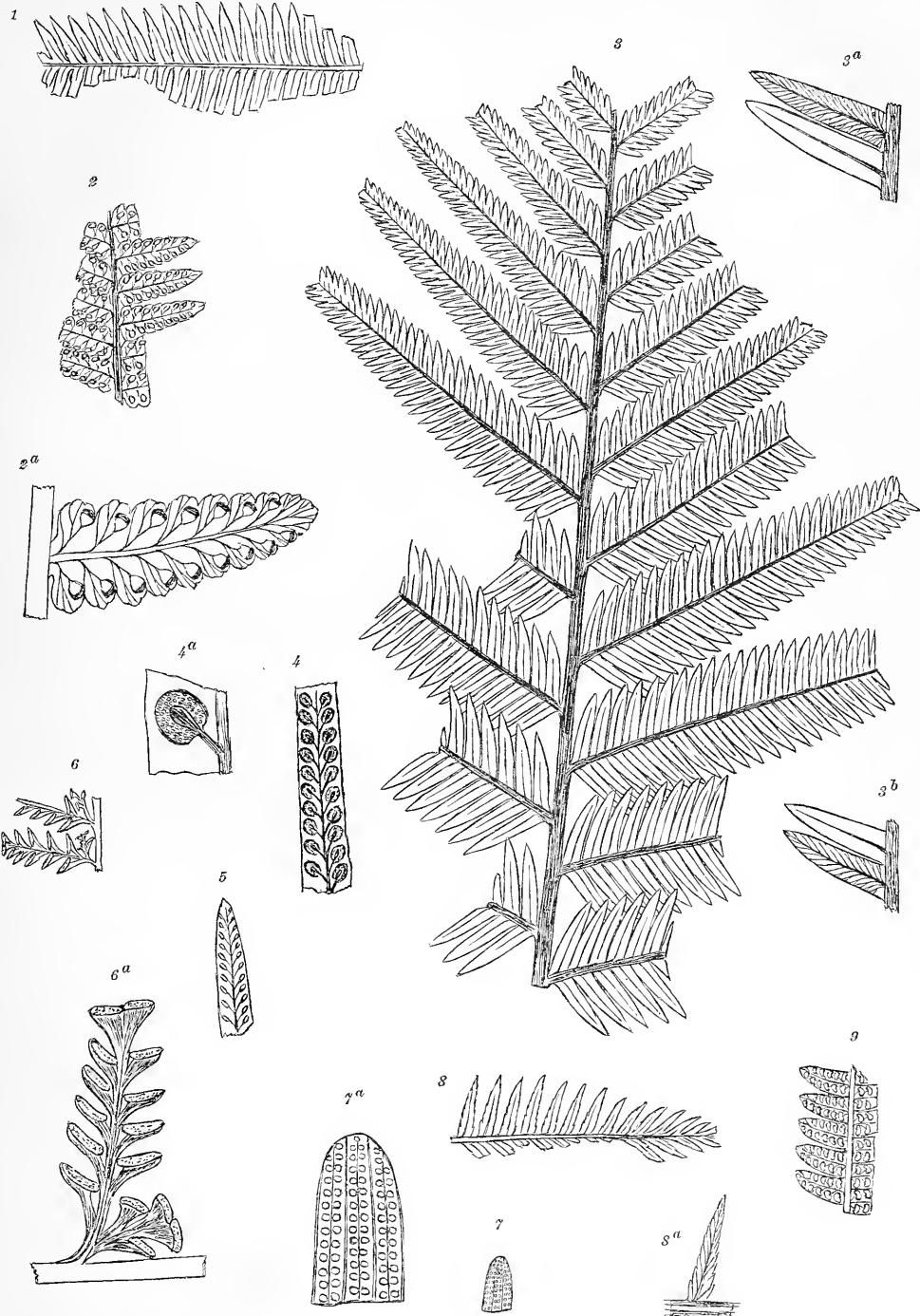


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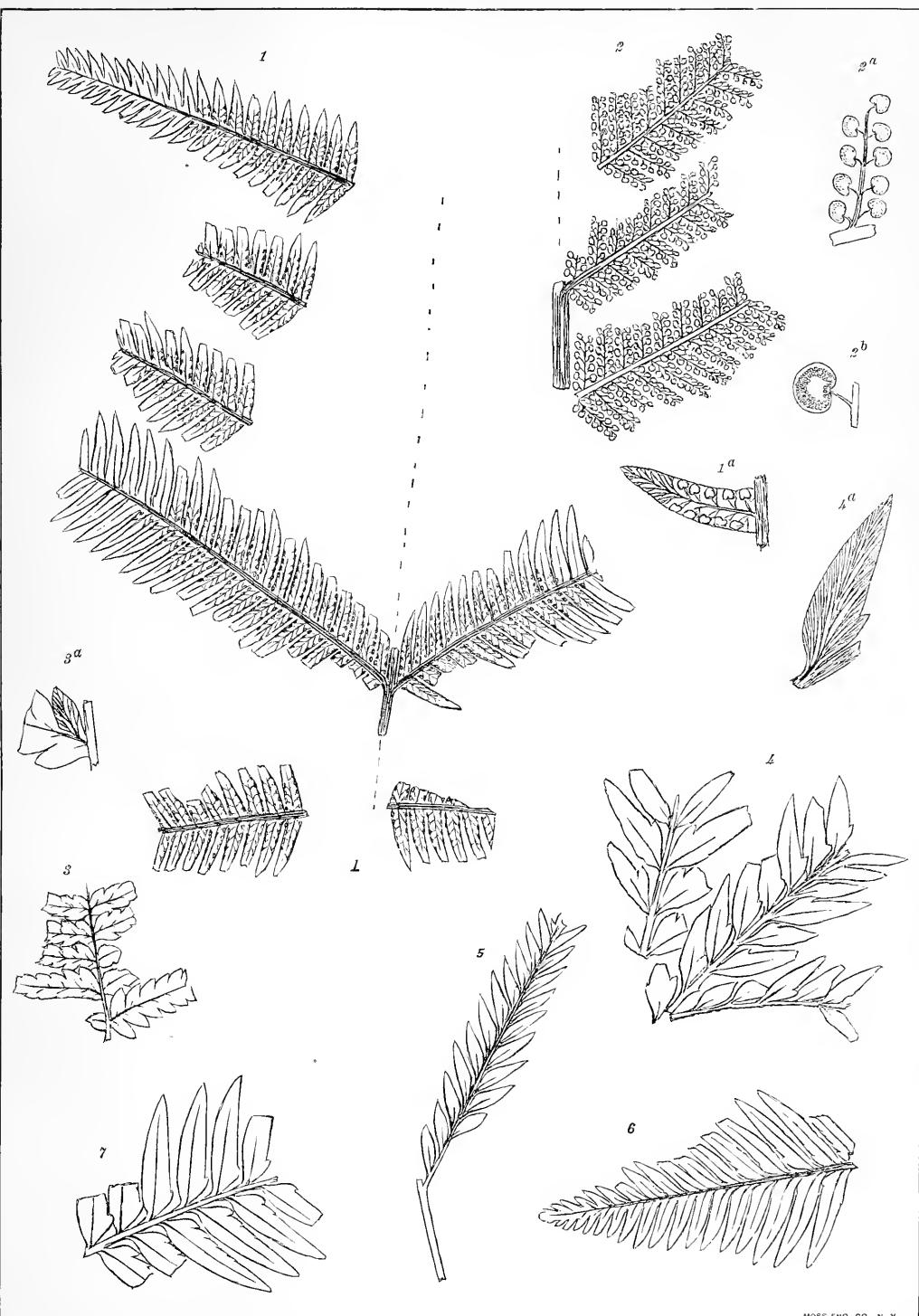




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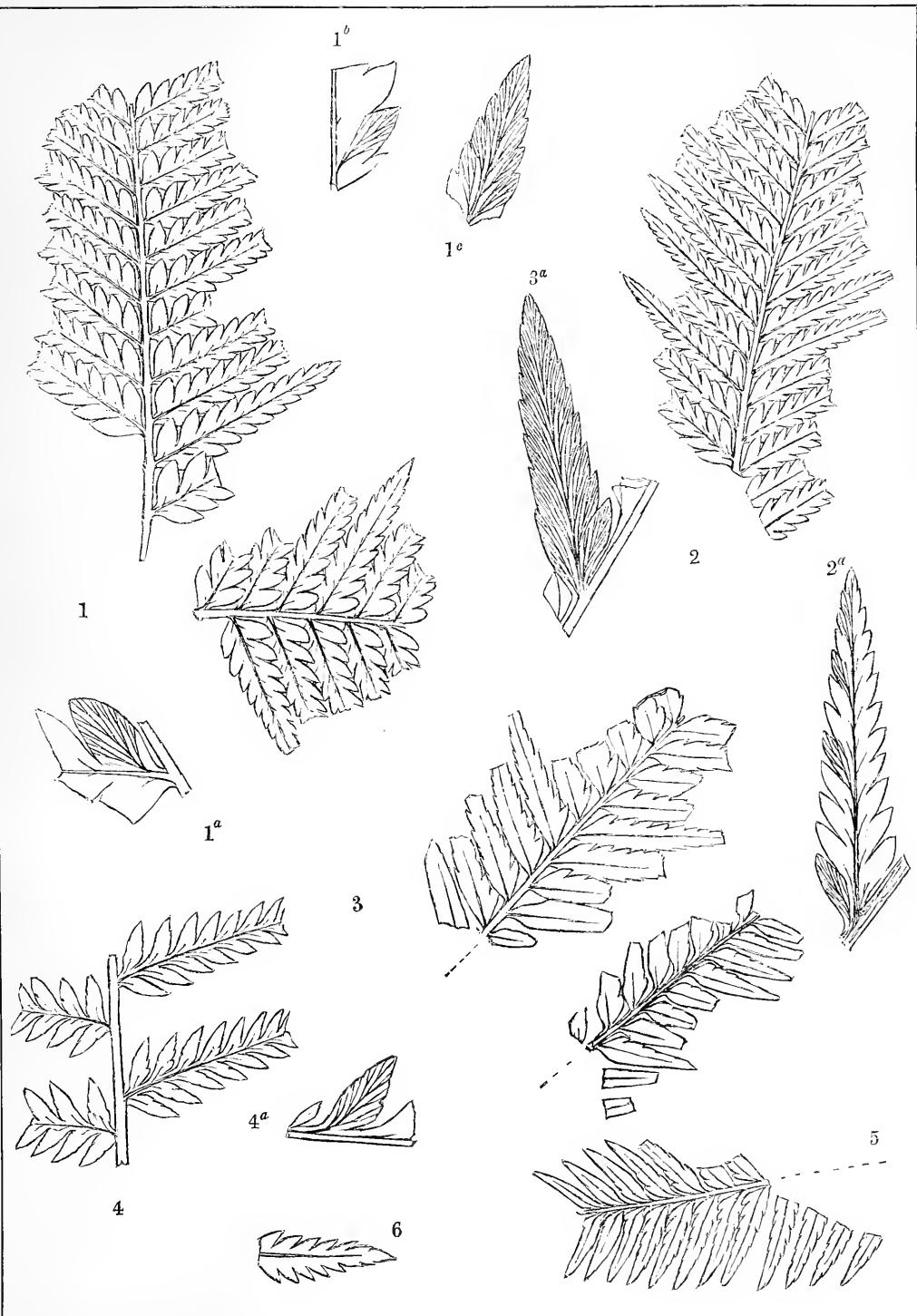


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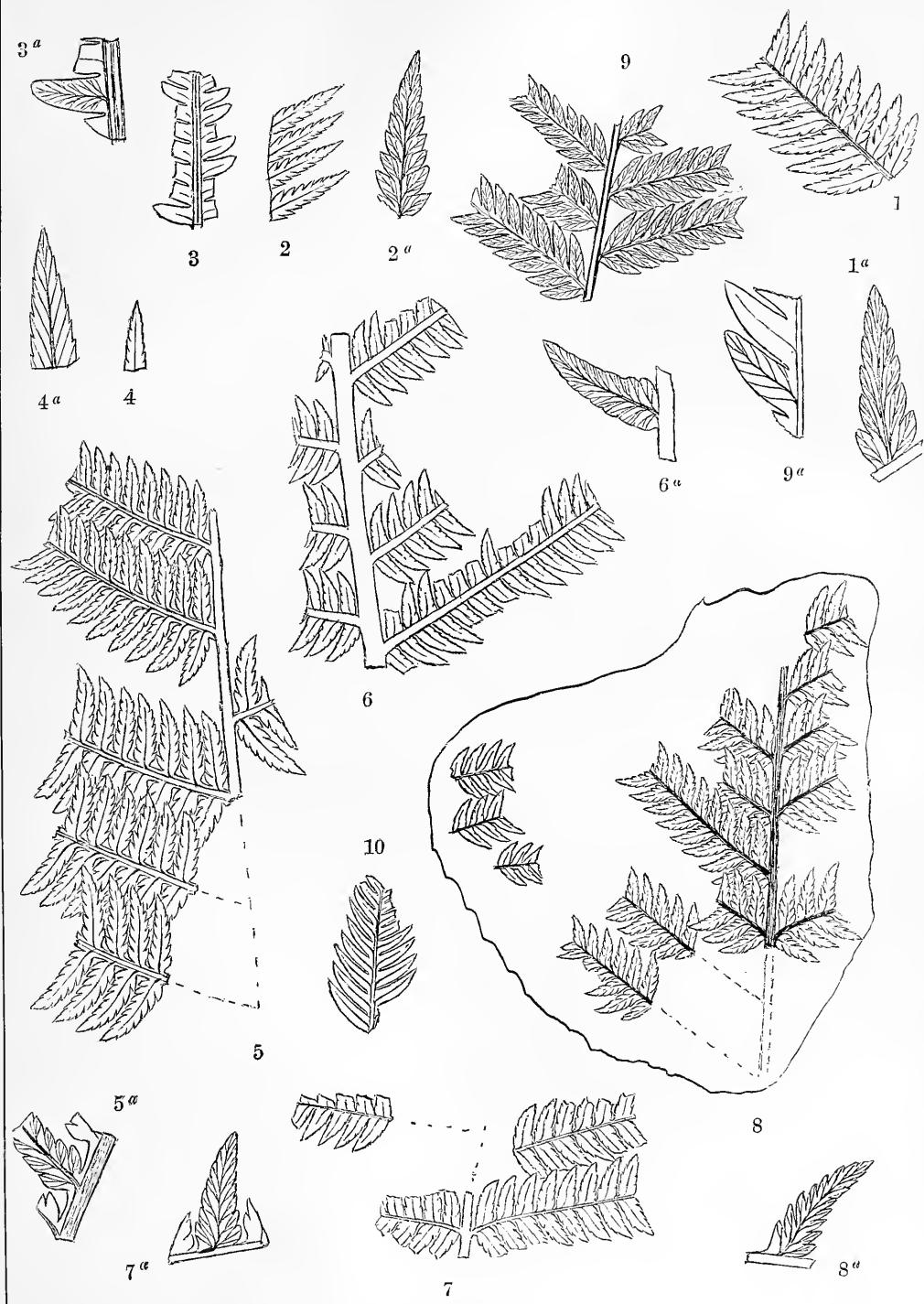


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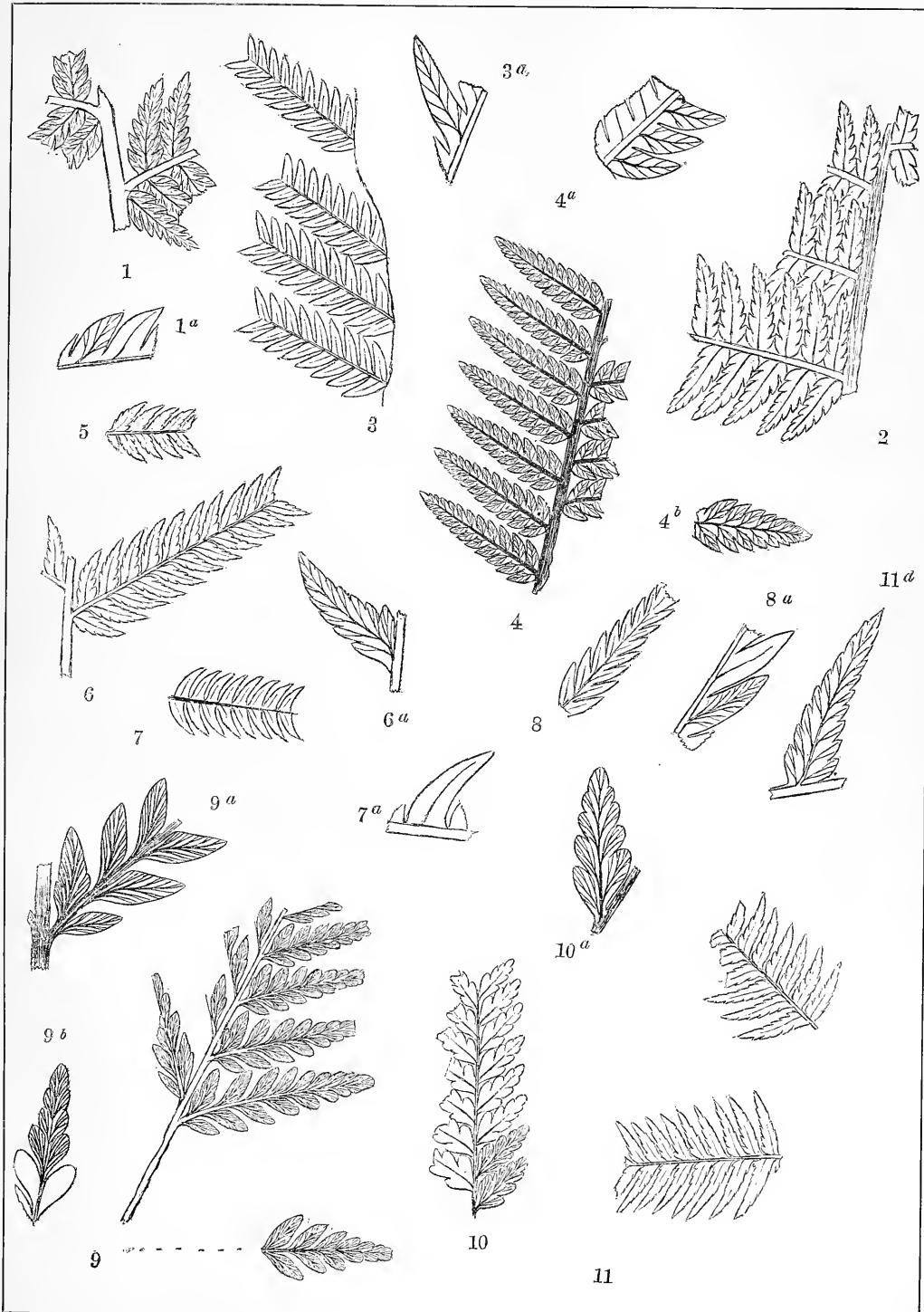




PLATE XXI.

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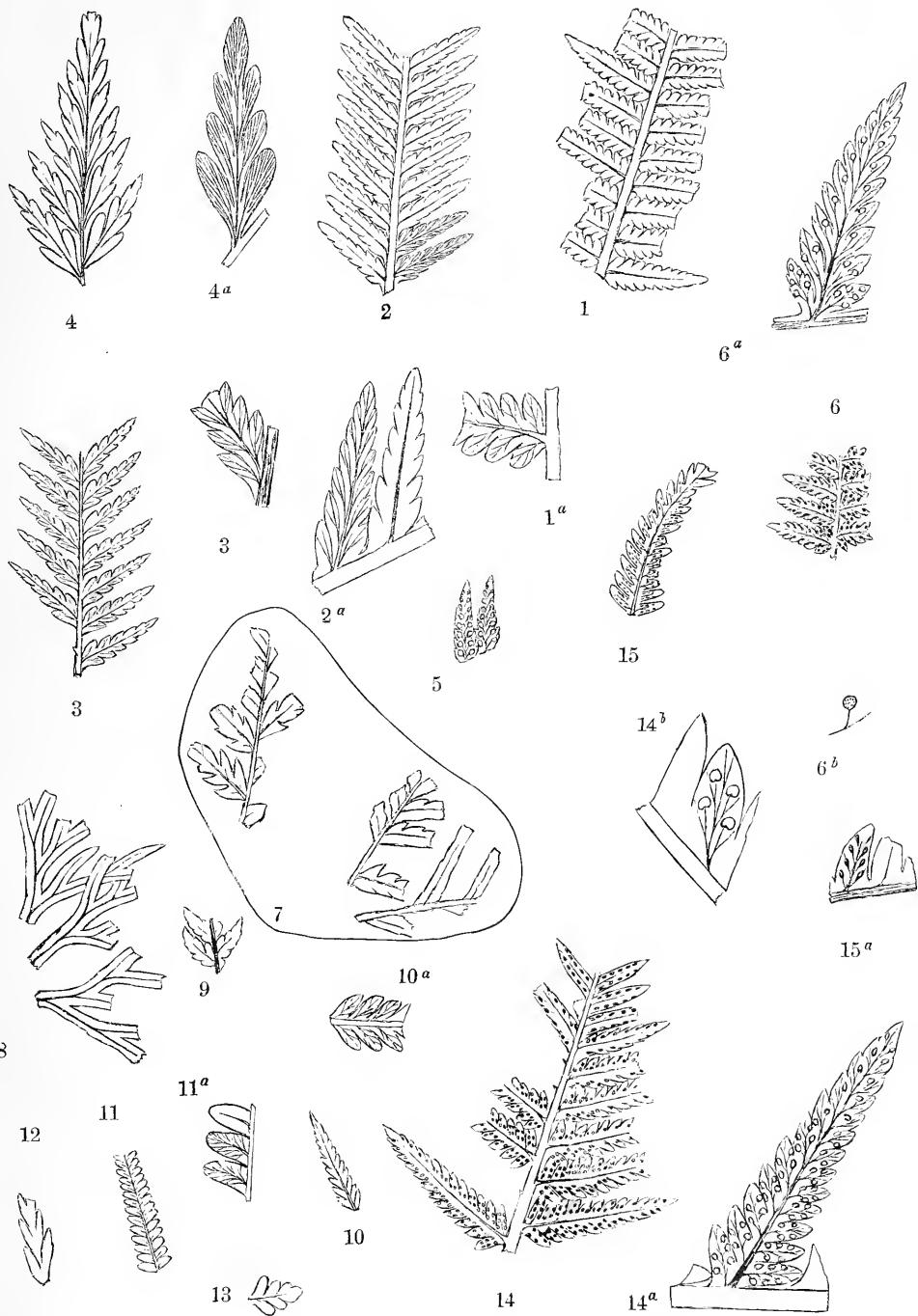


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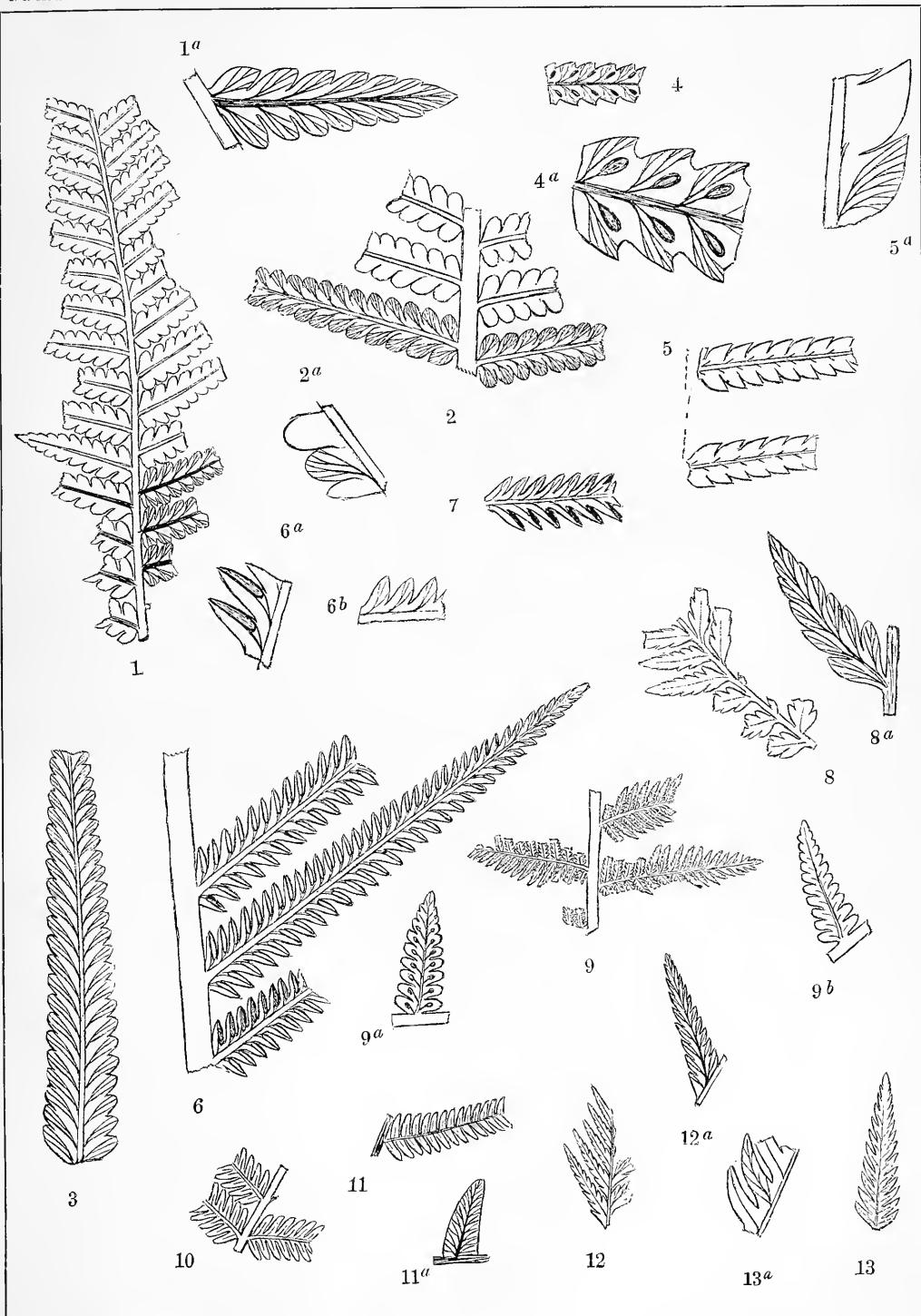




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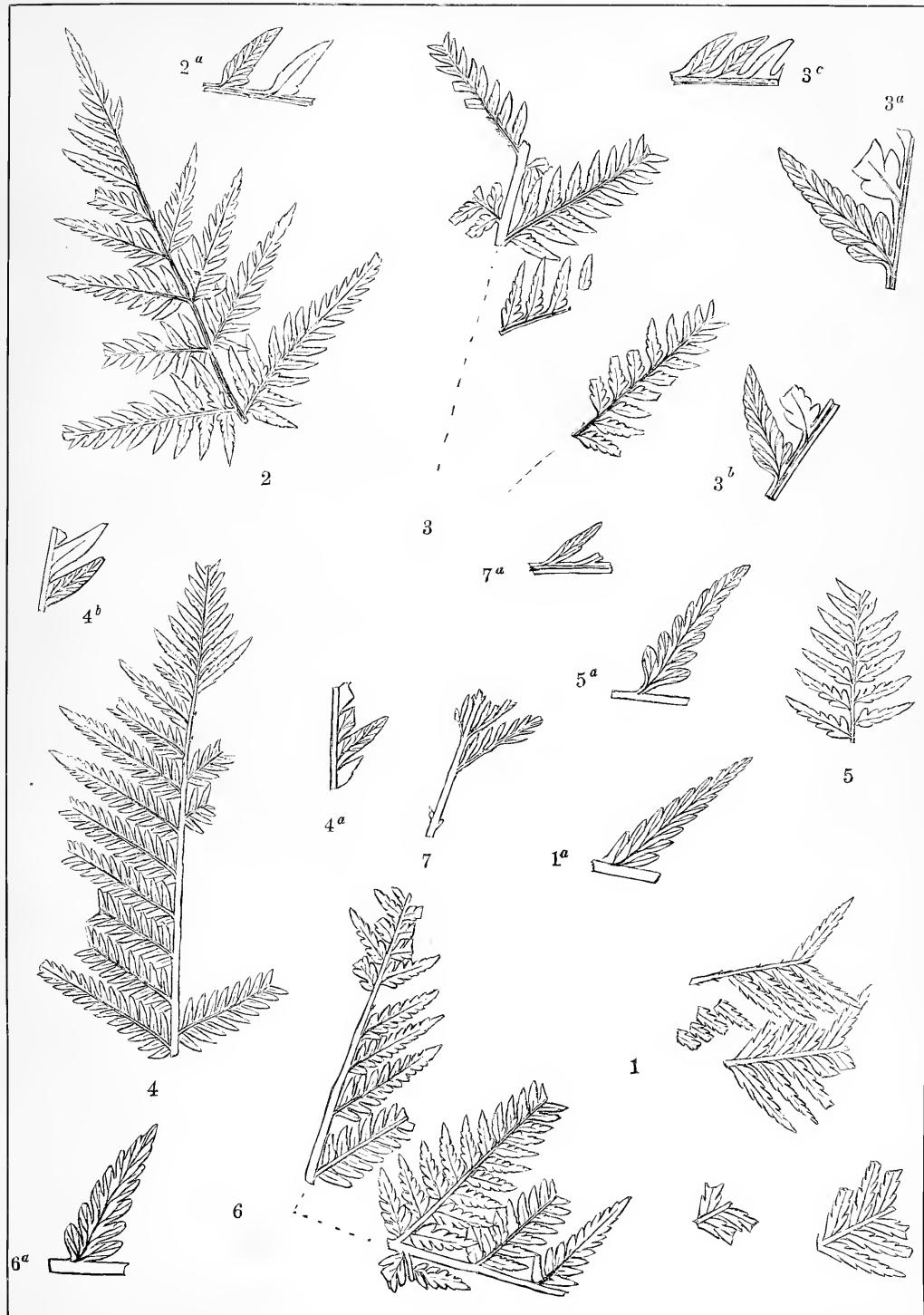
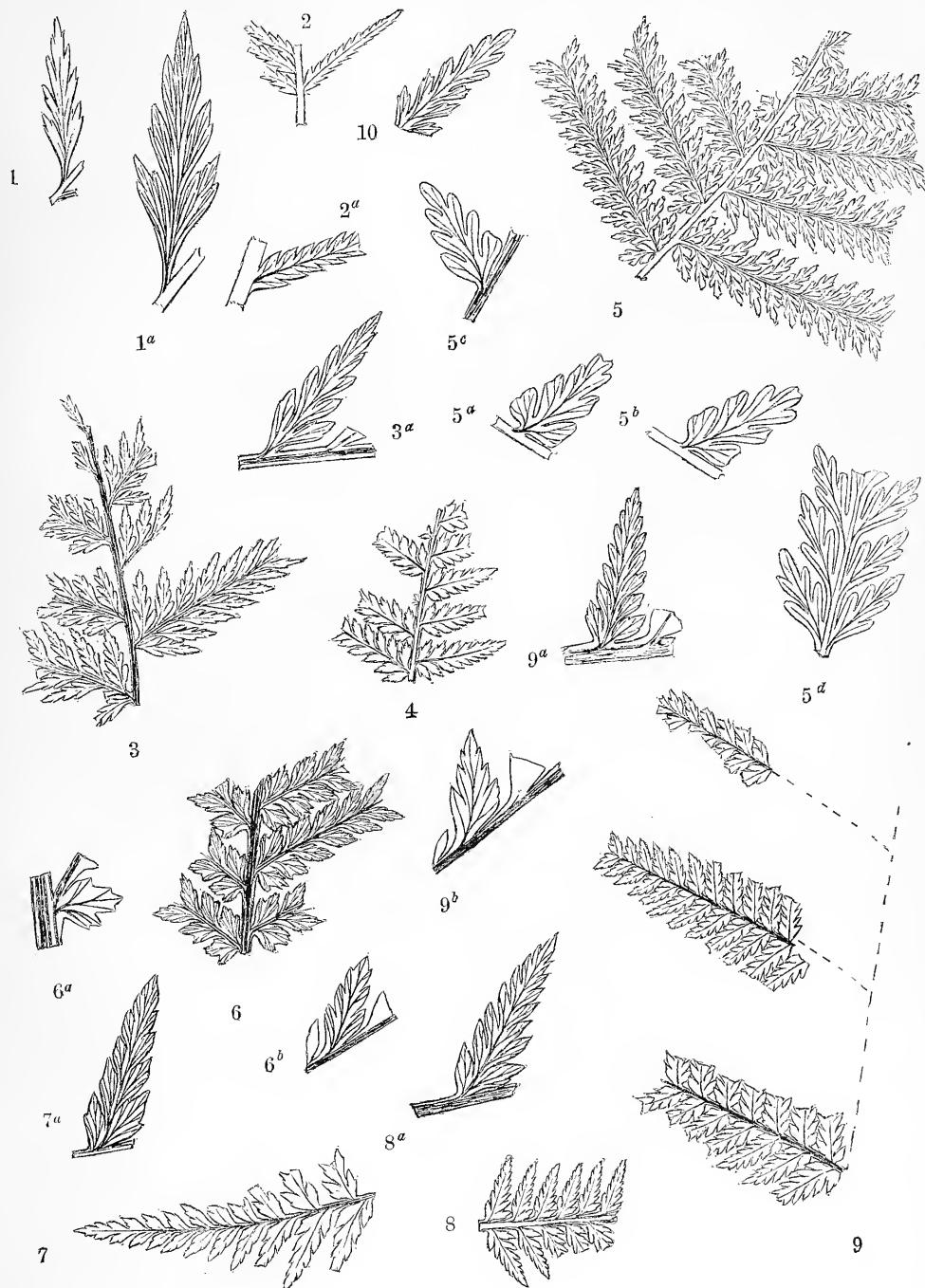




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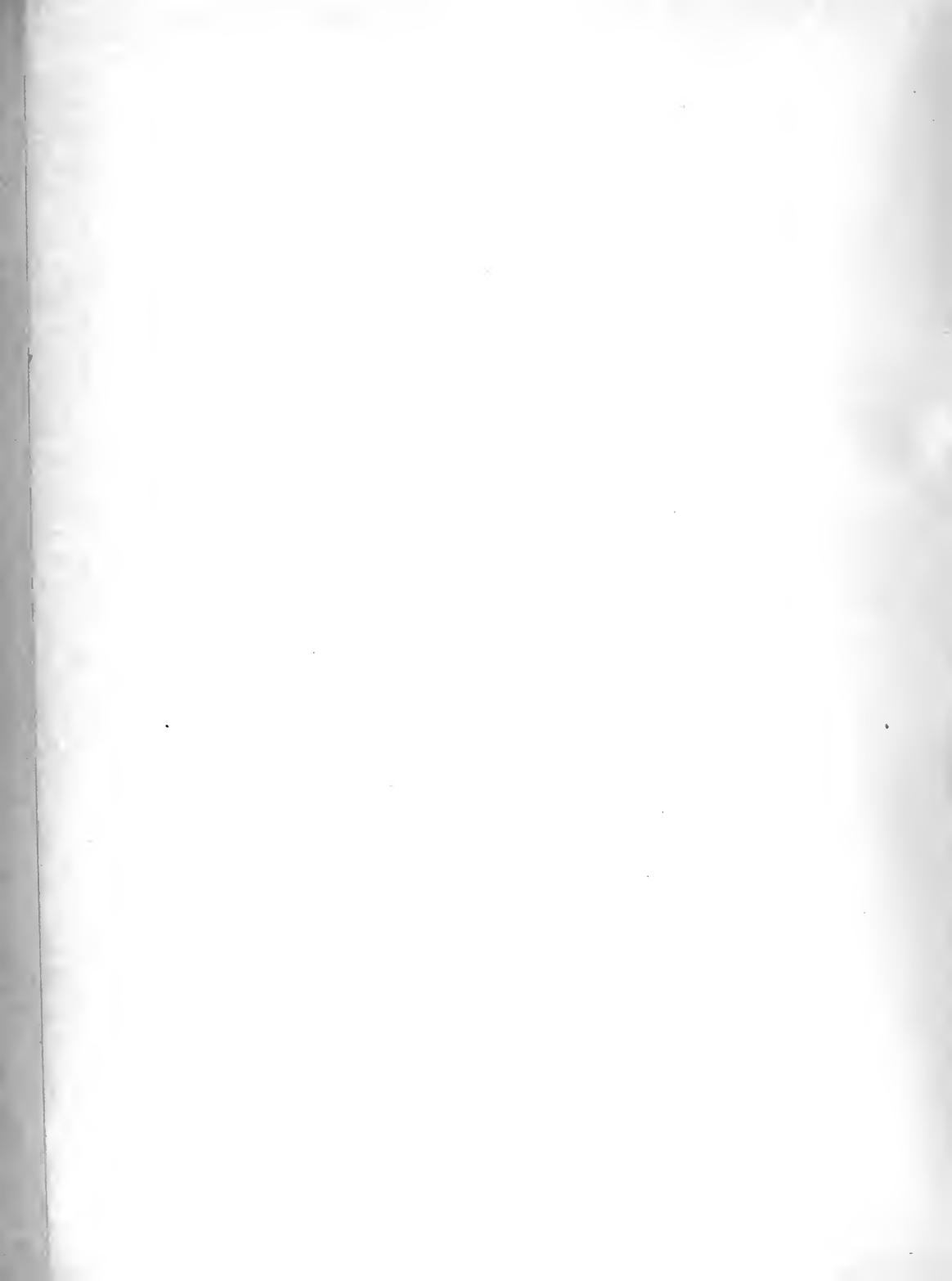


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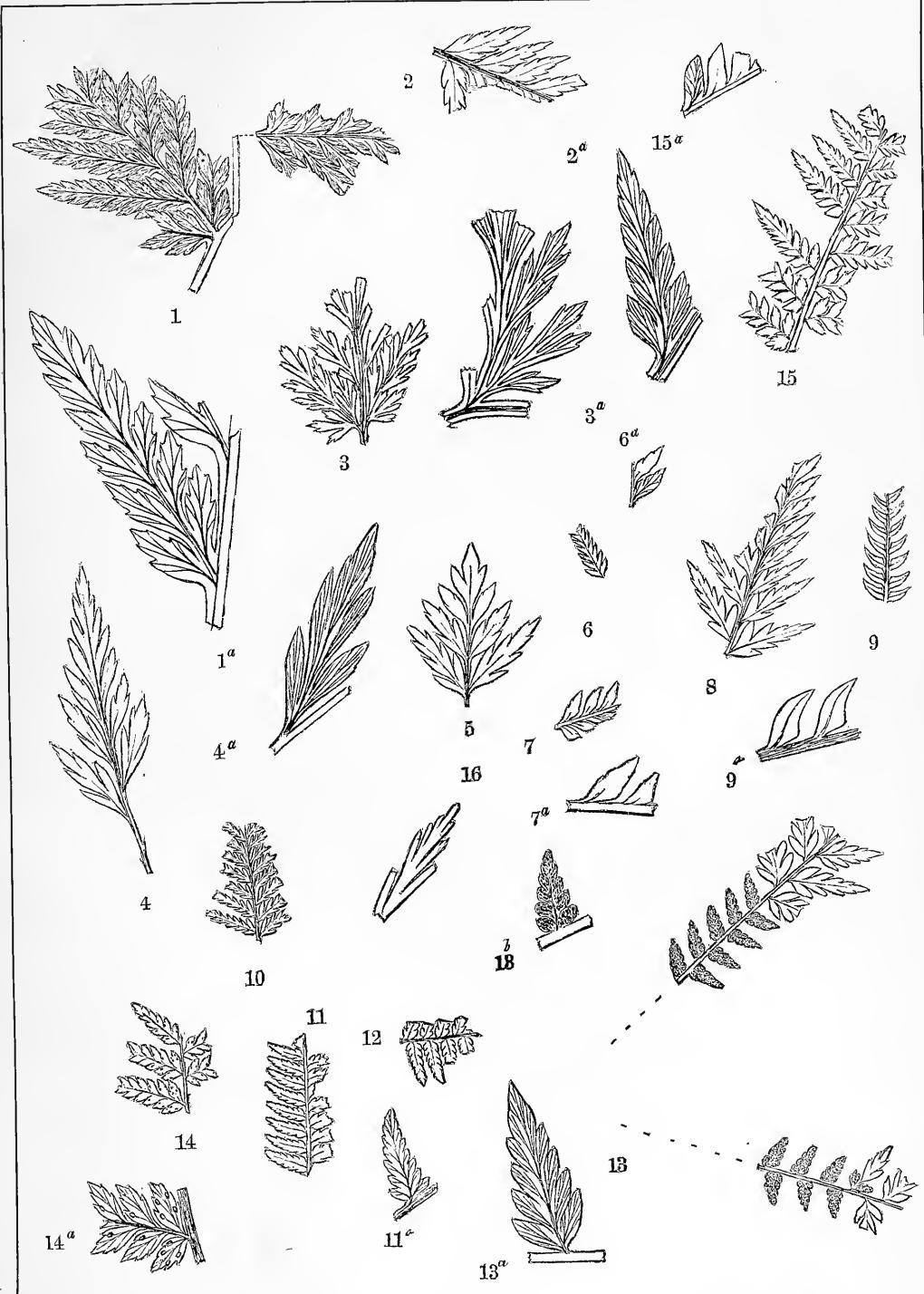


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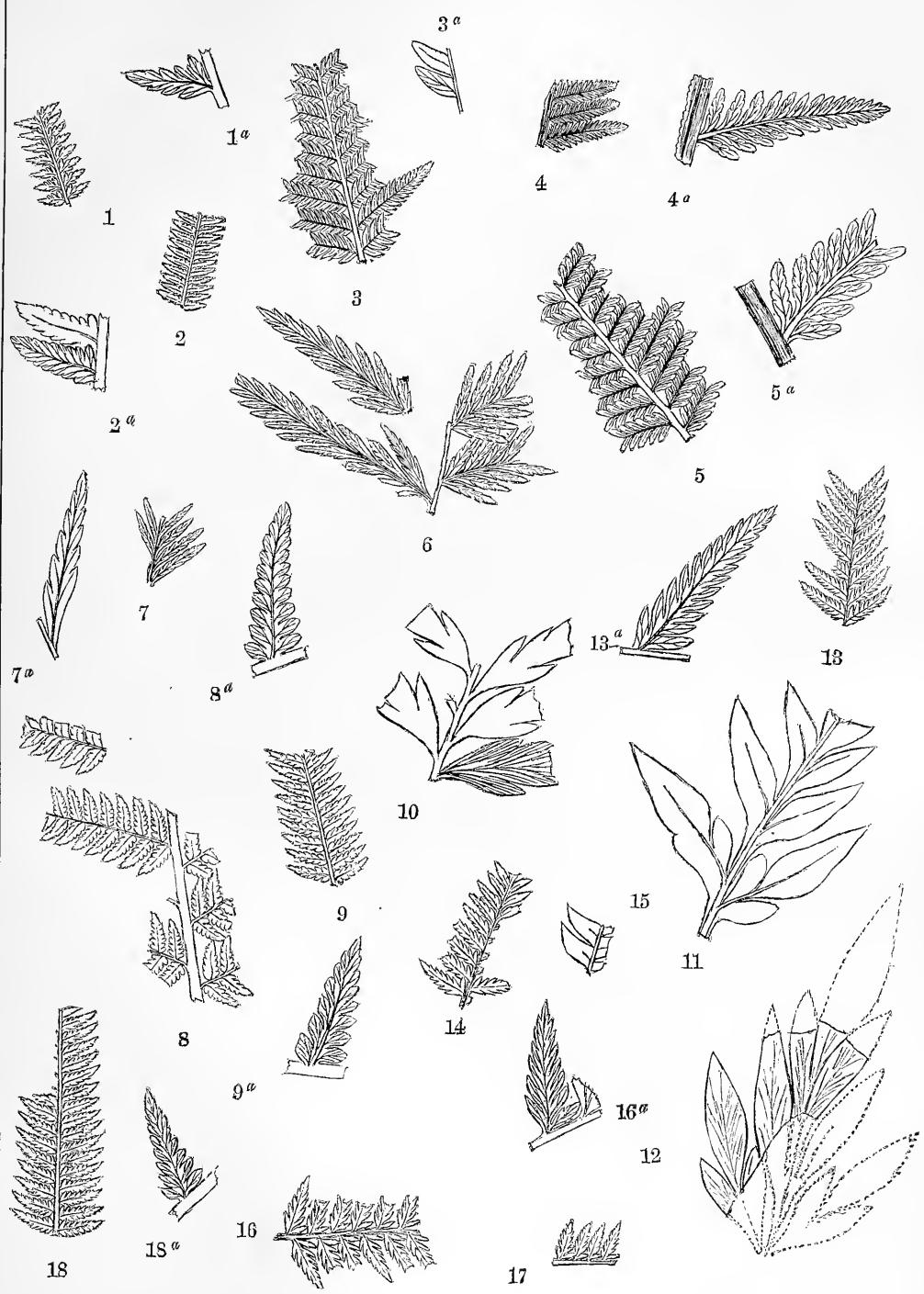


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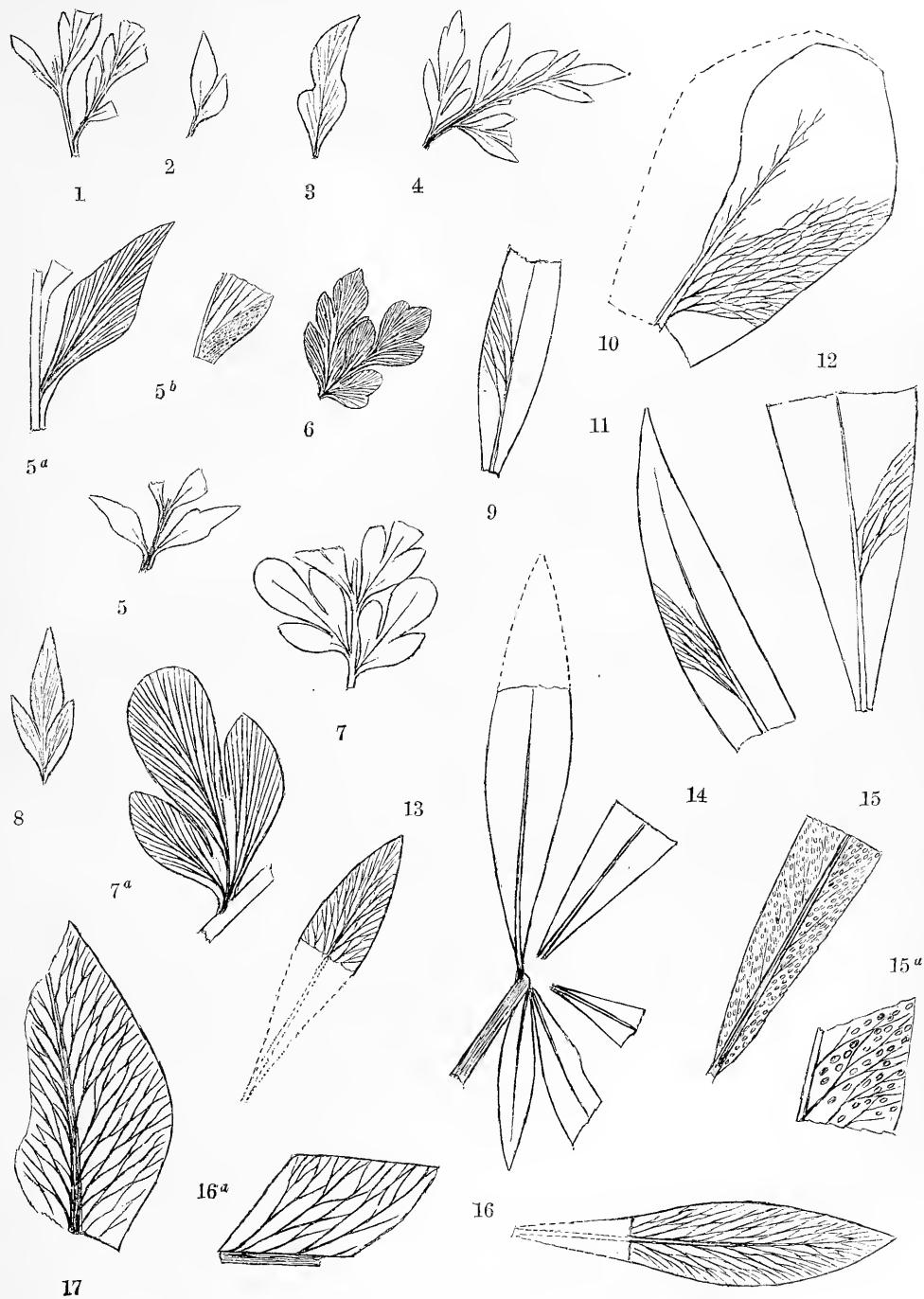


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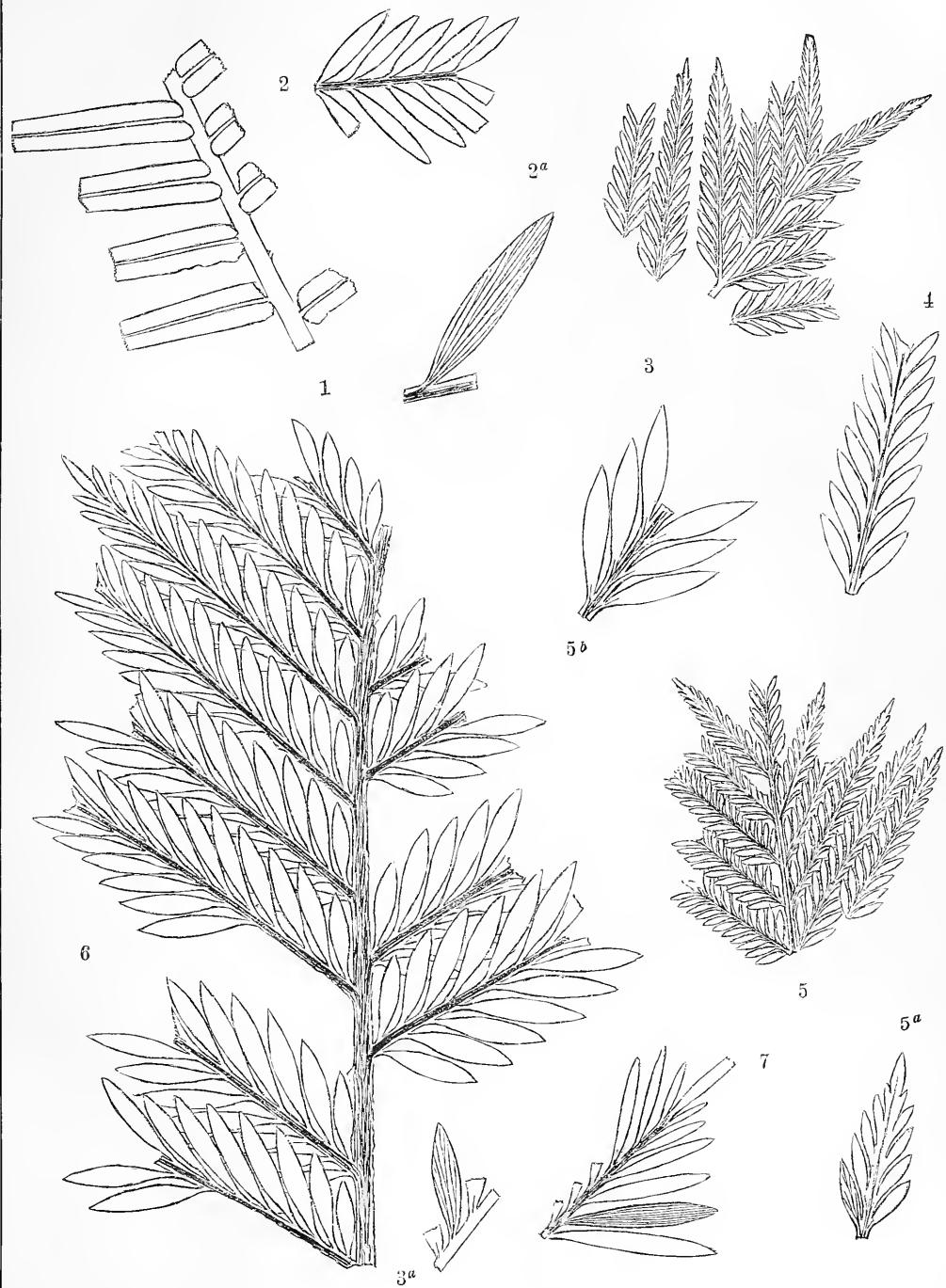


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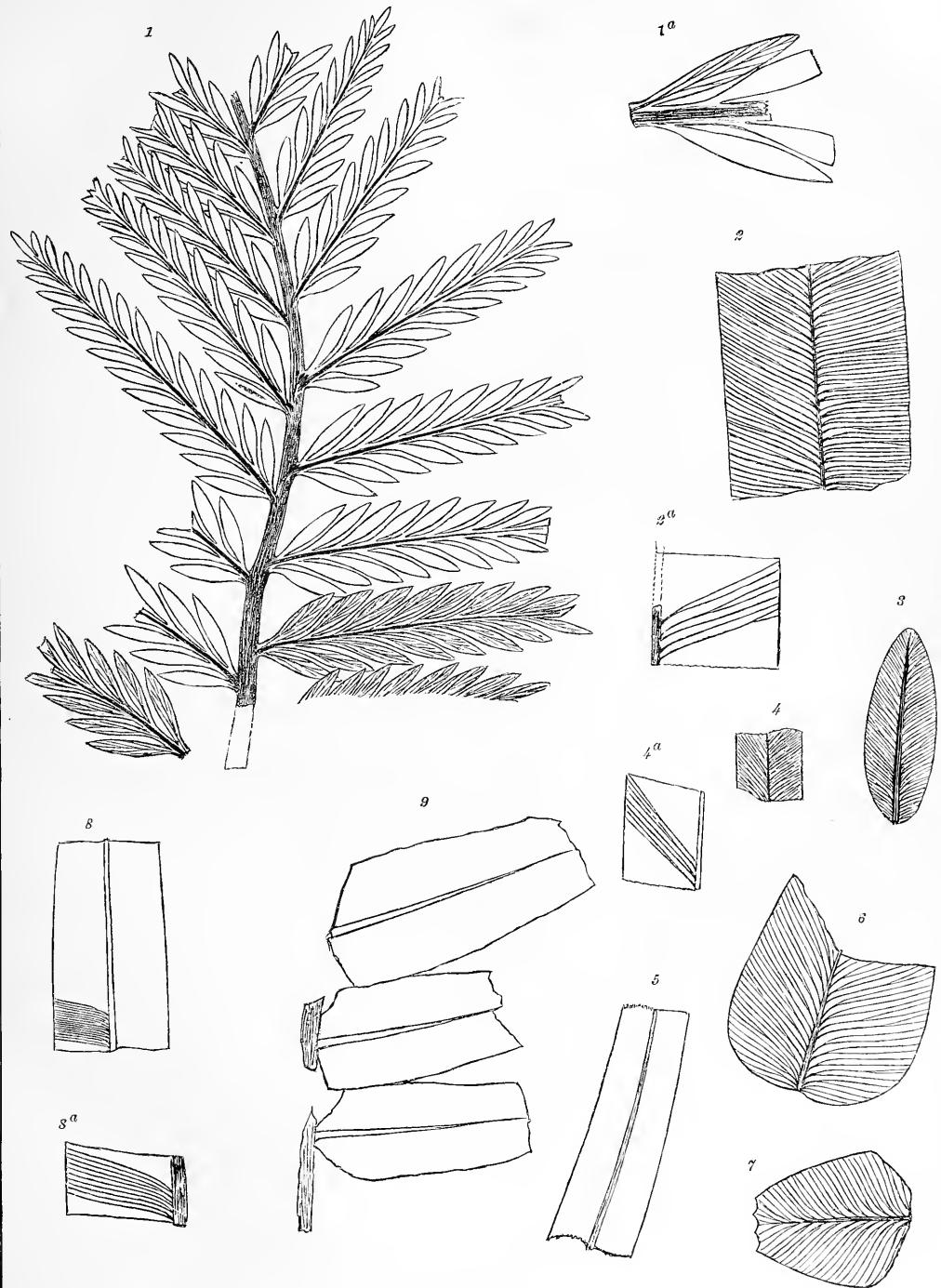




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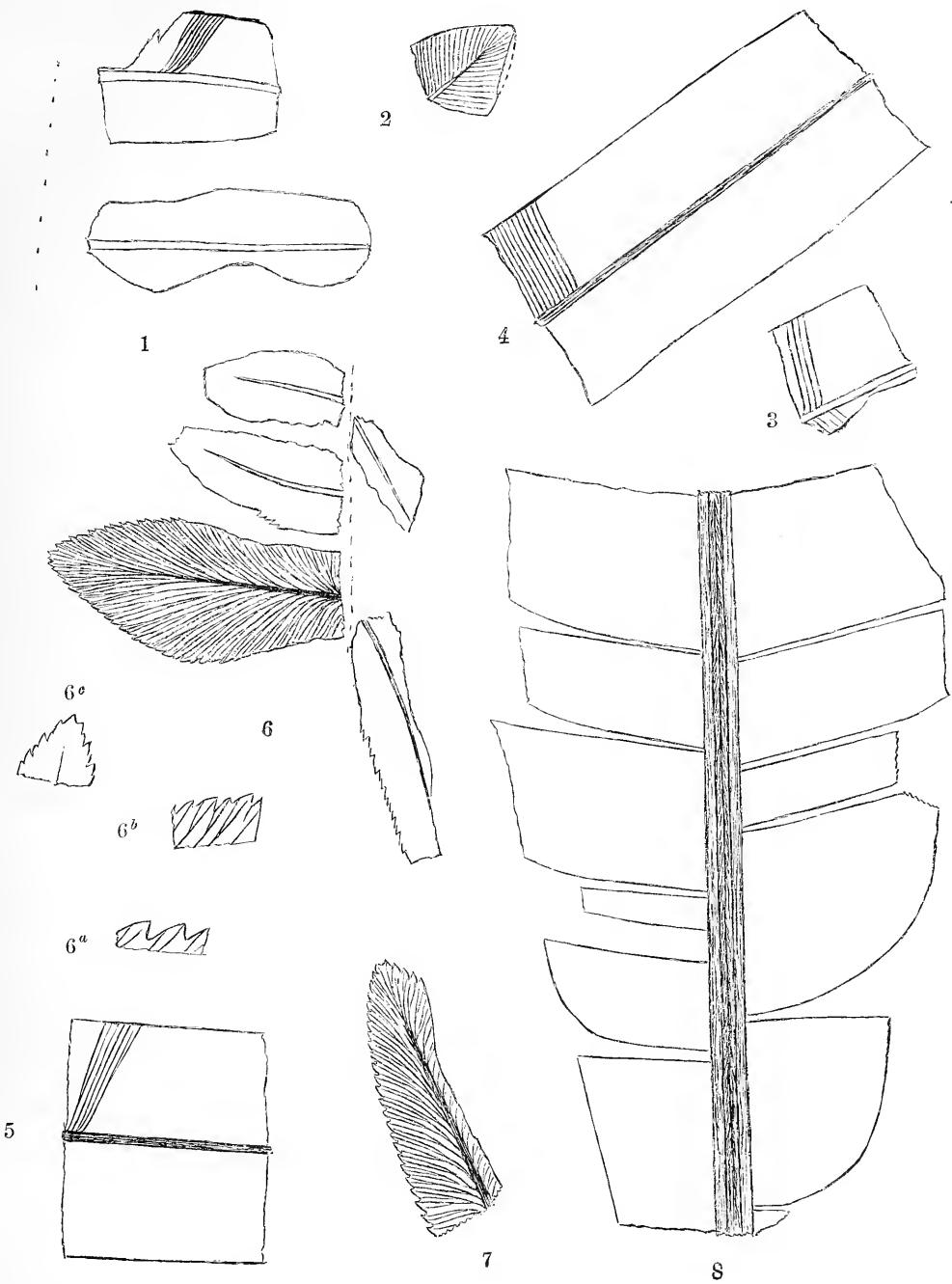


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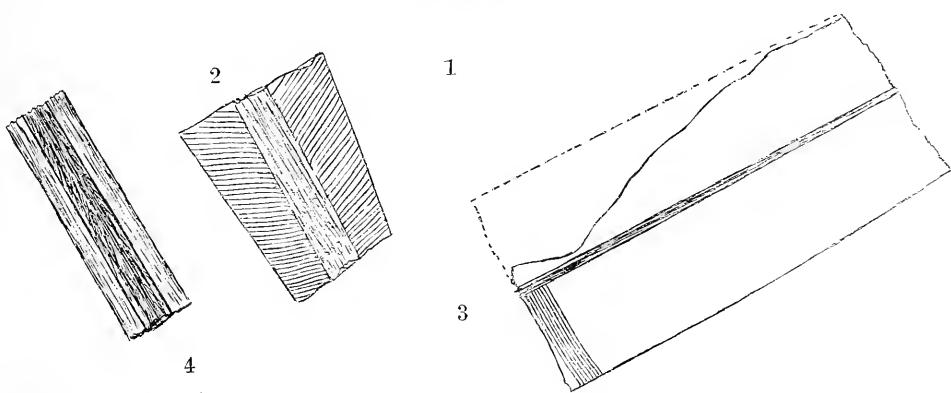
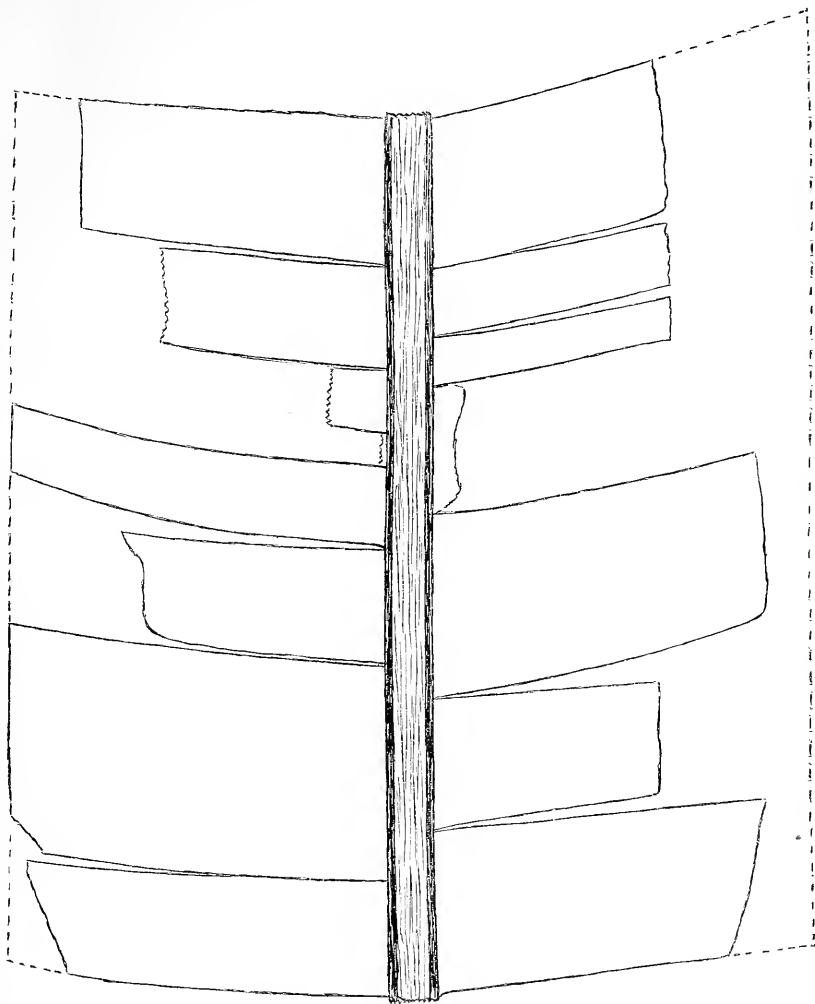
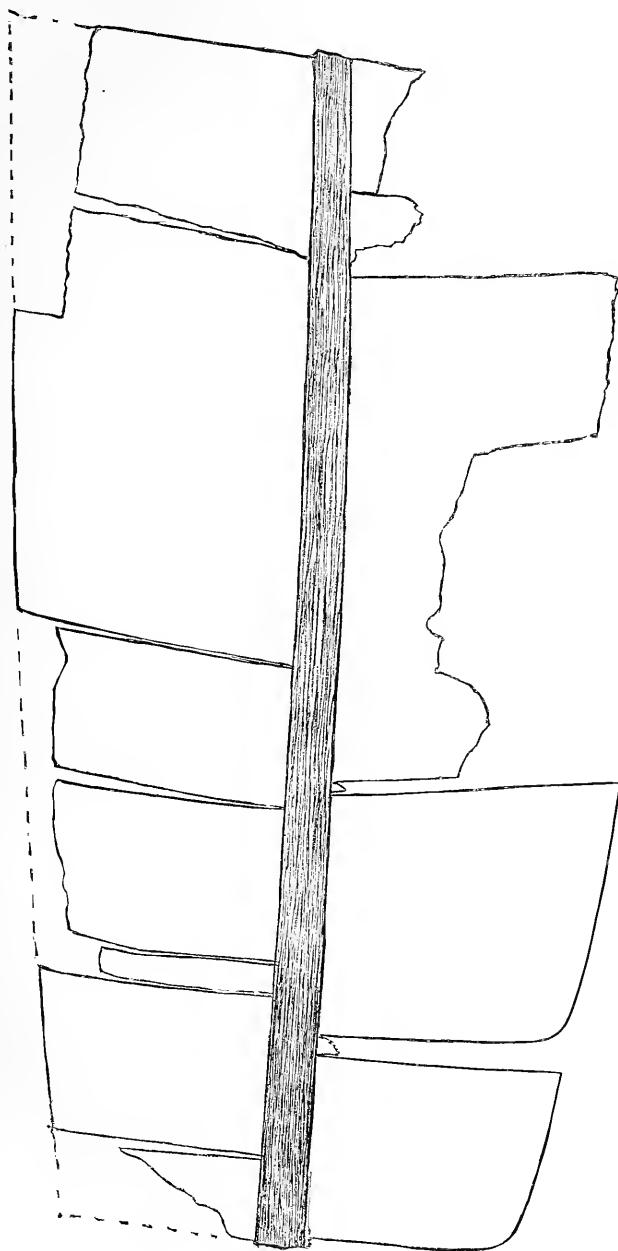




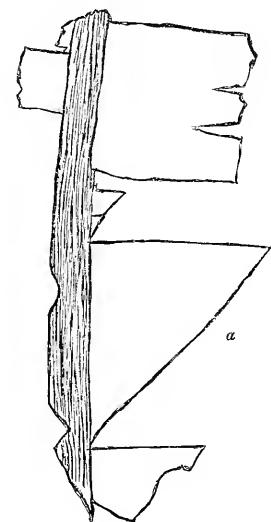
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1



2

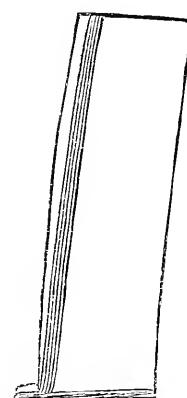
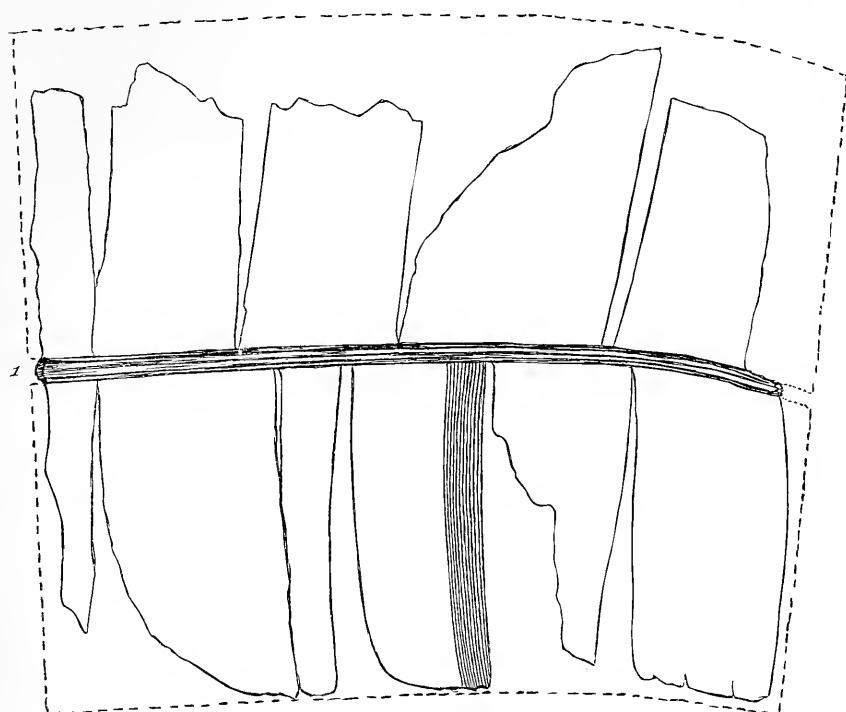
1^a

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1a

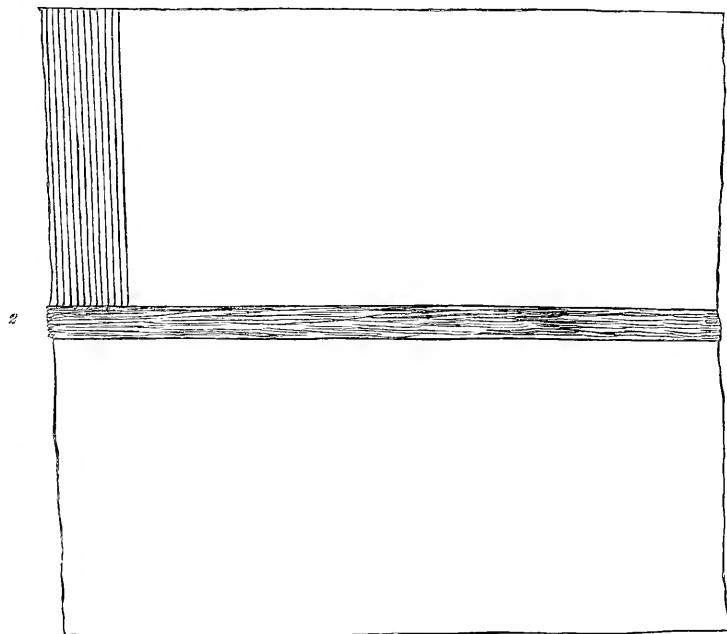
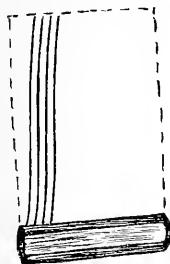


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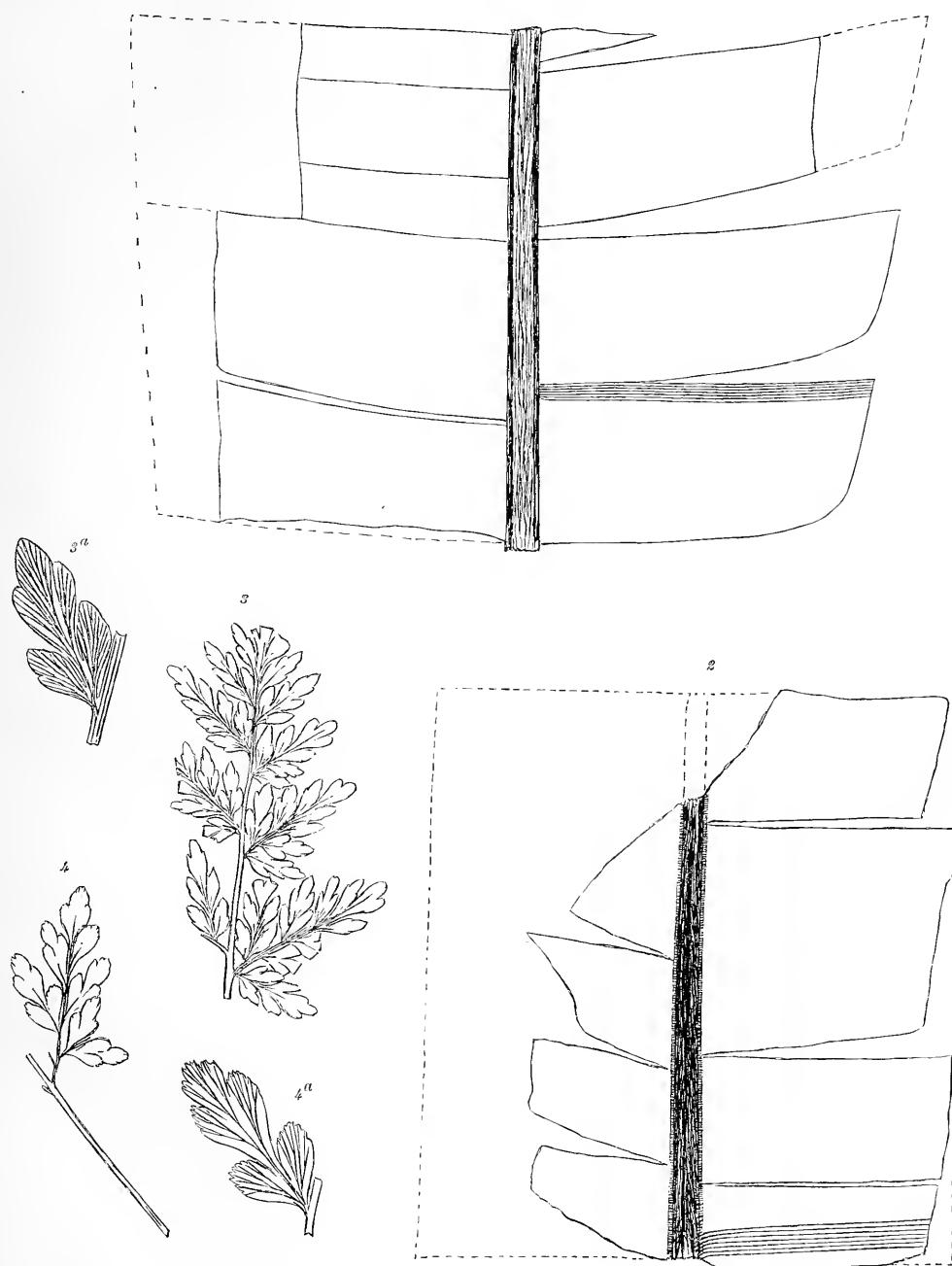




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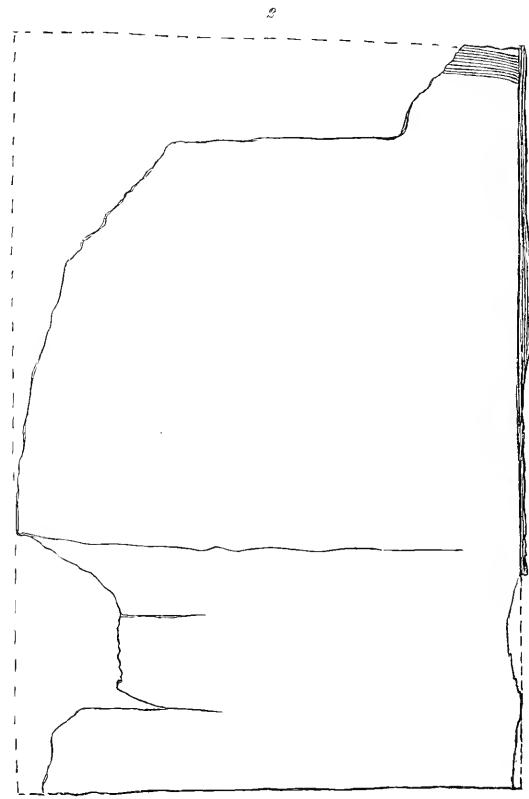
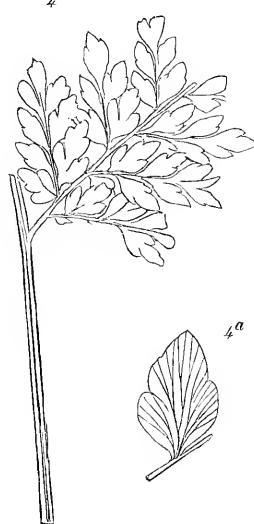
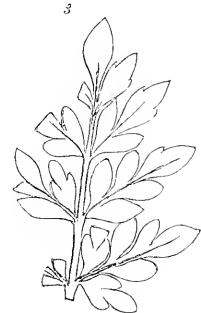
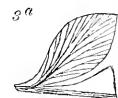
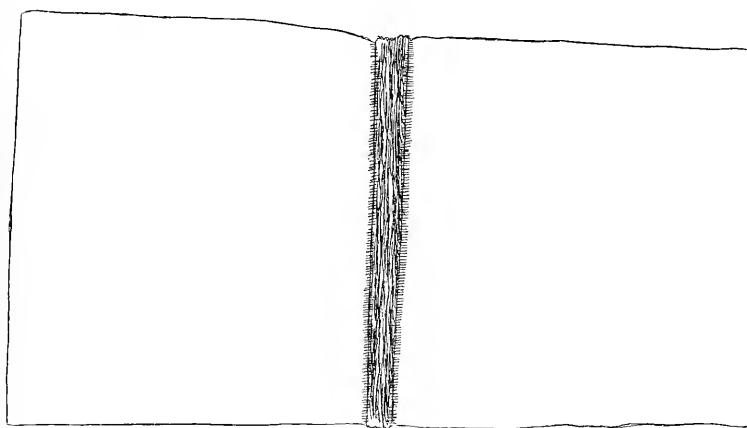




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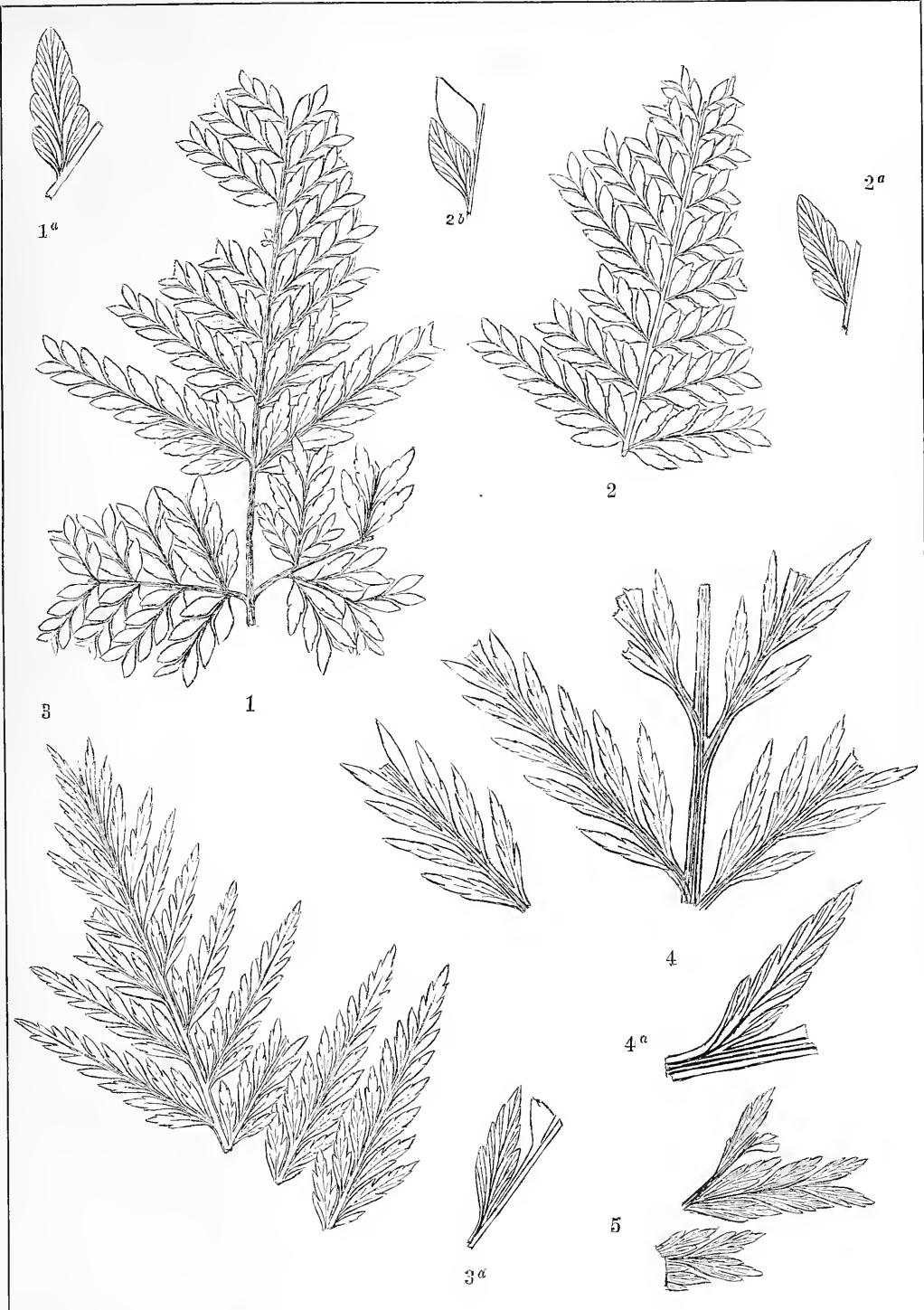


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1 ^b . Upper pinnae magnified	130
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2 ^a . Pinnule of 2 magnified	127
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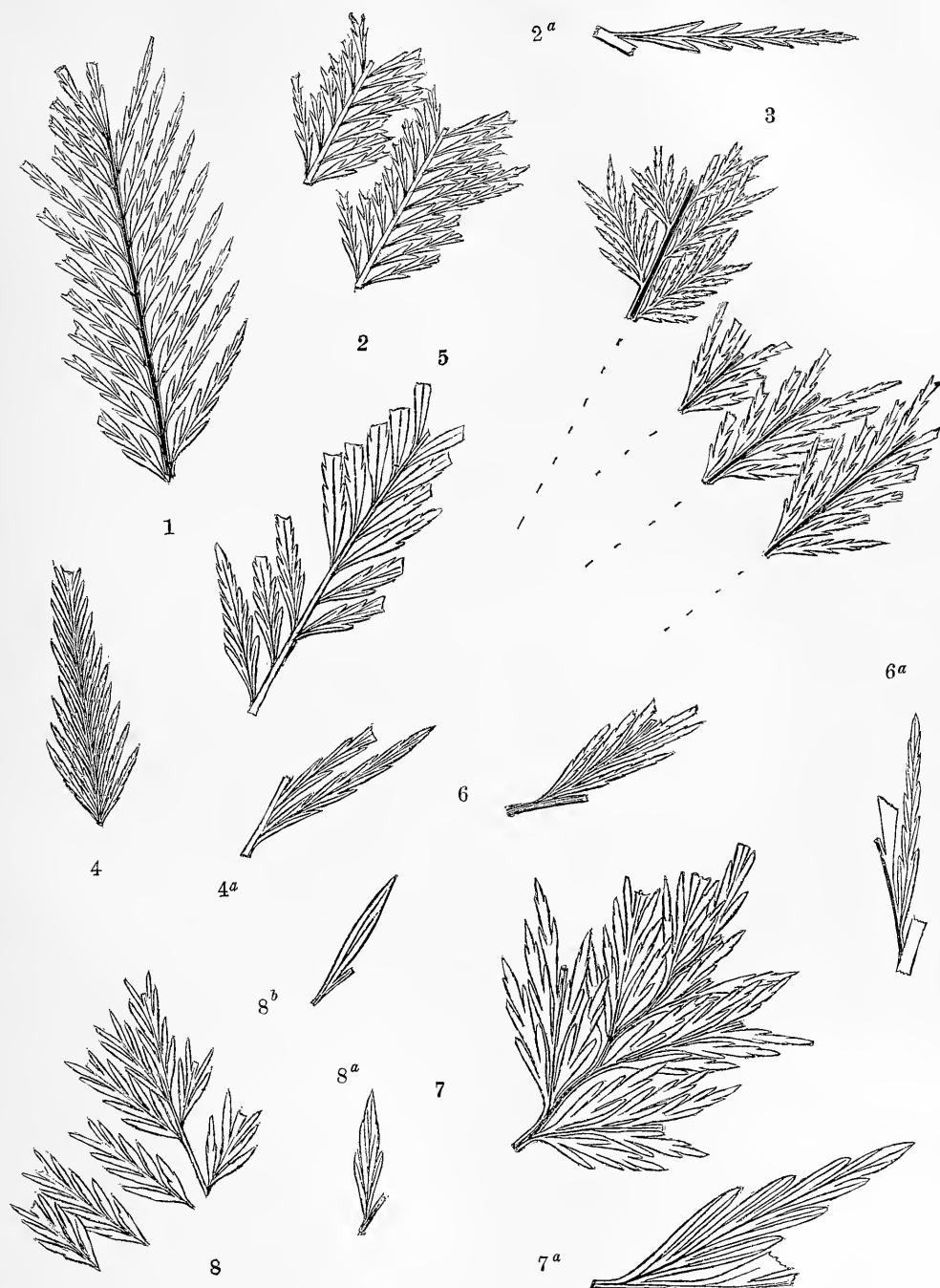




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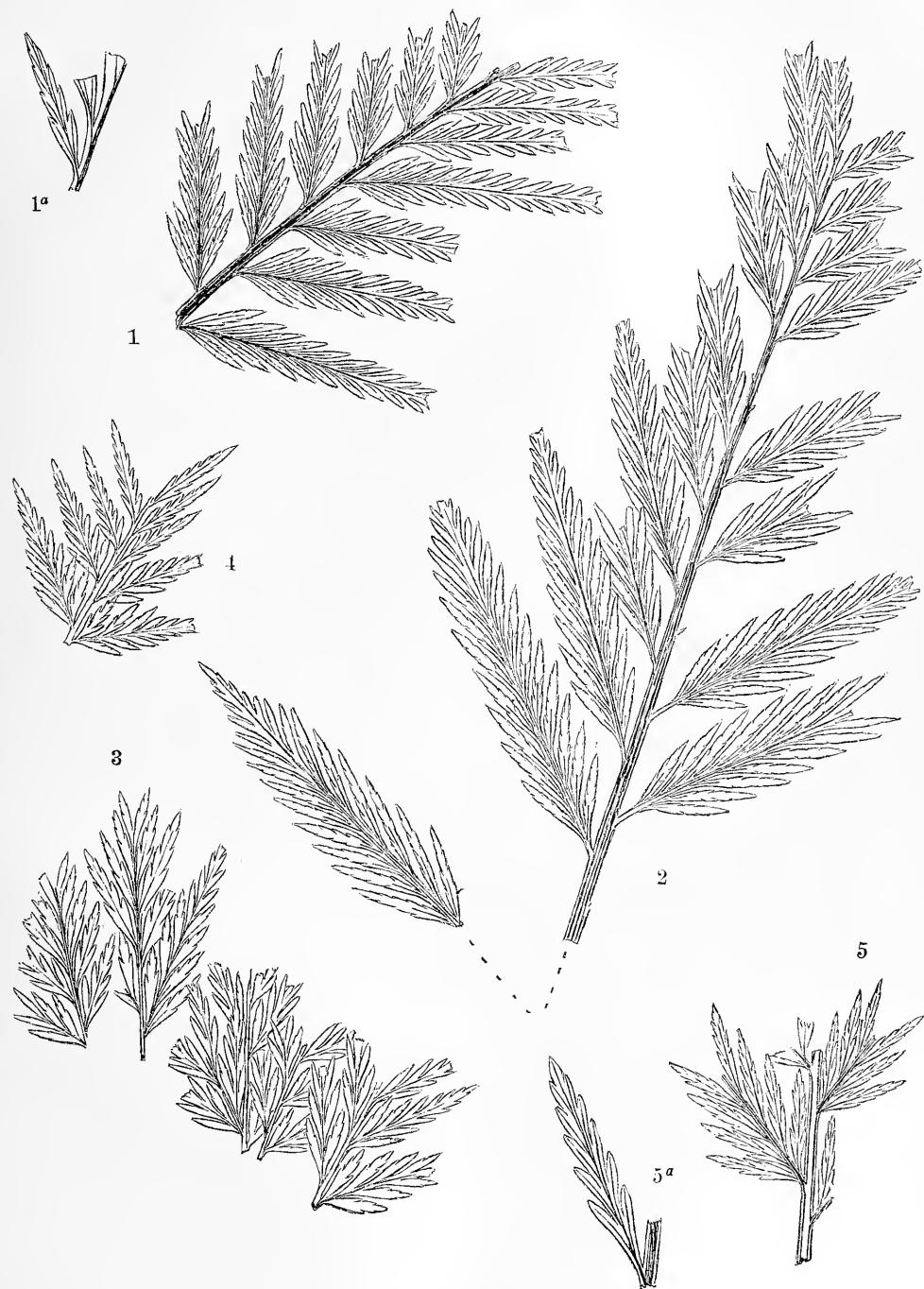


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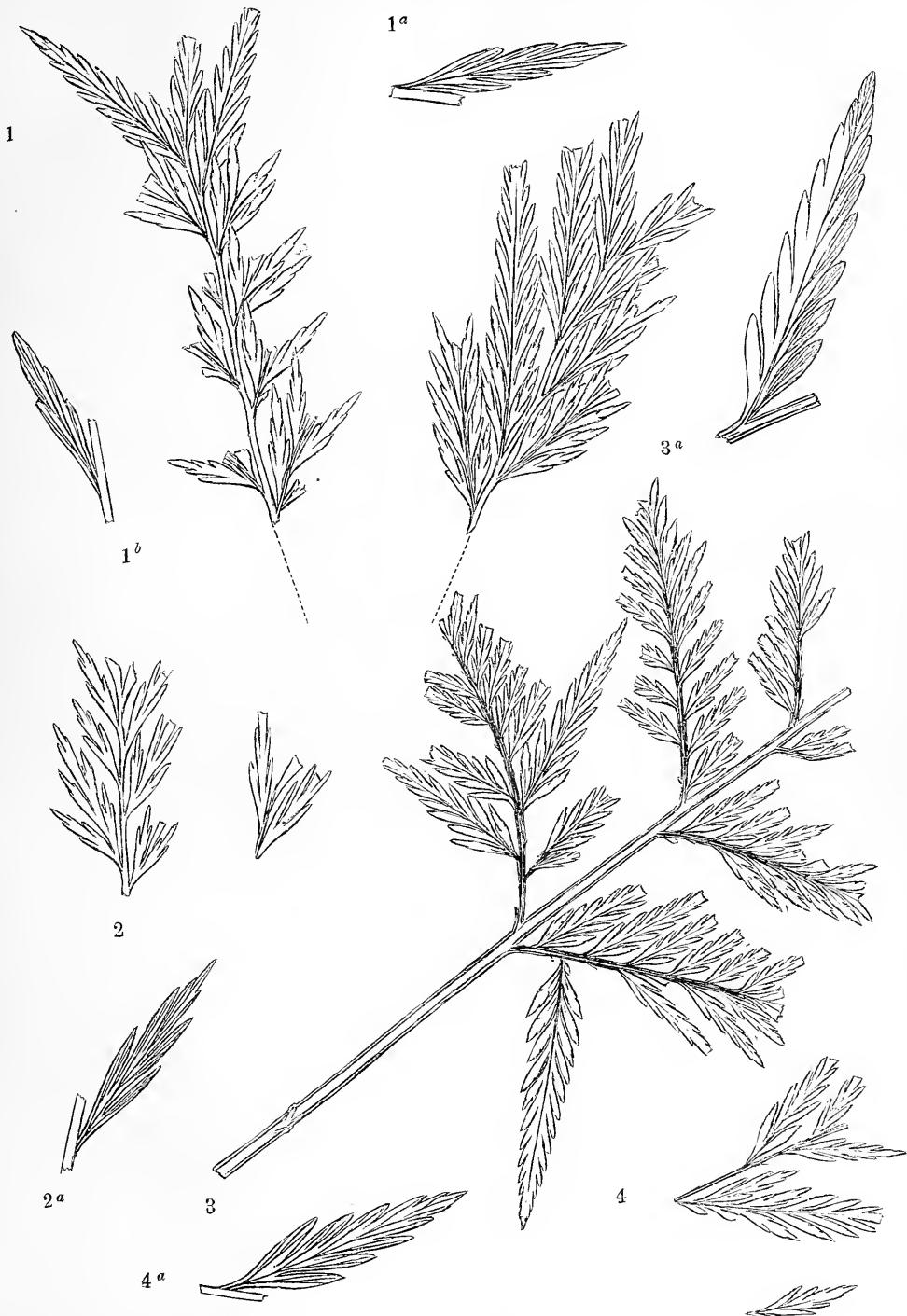


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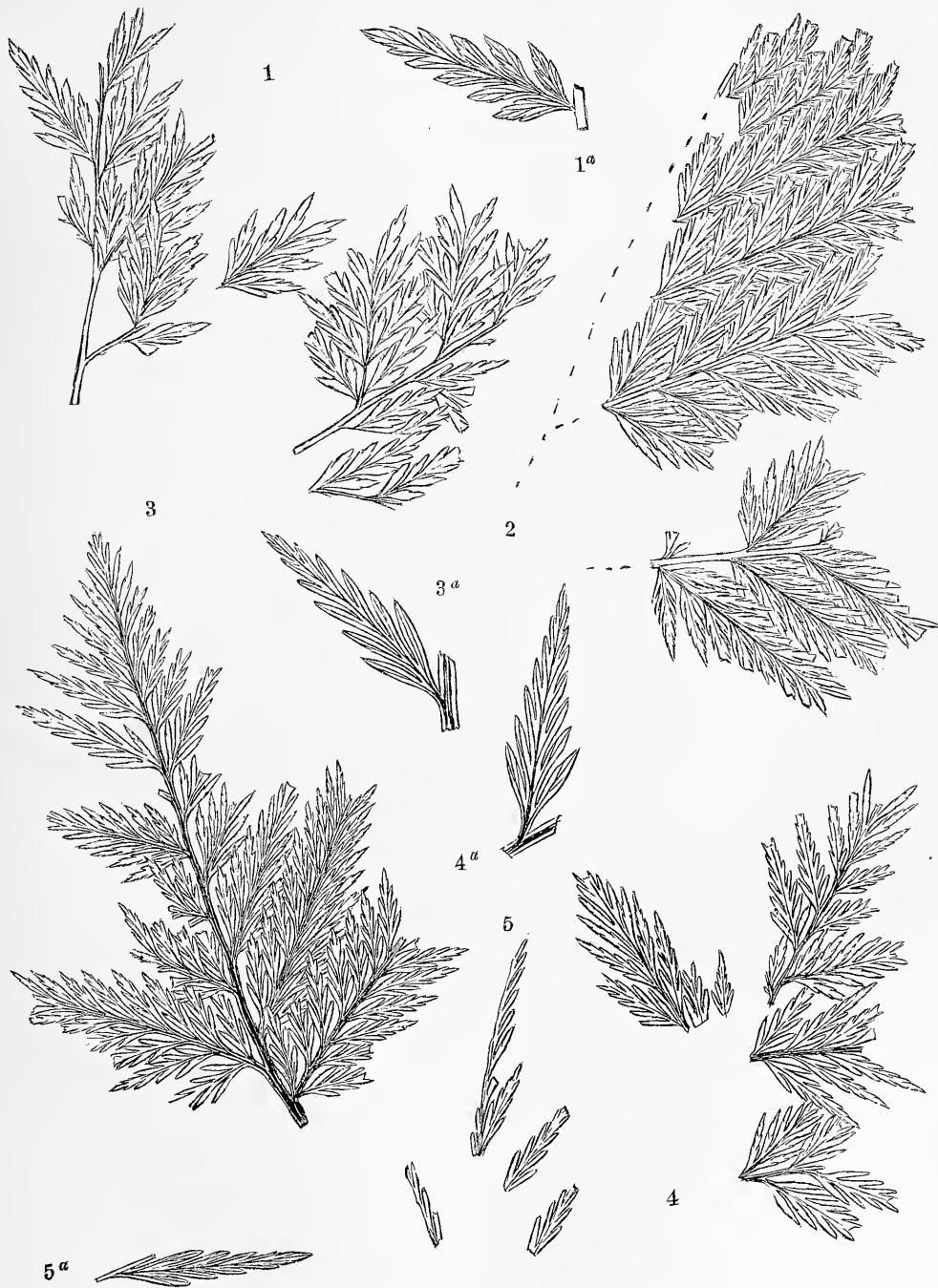


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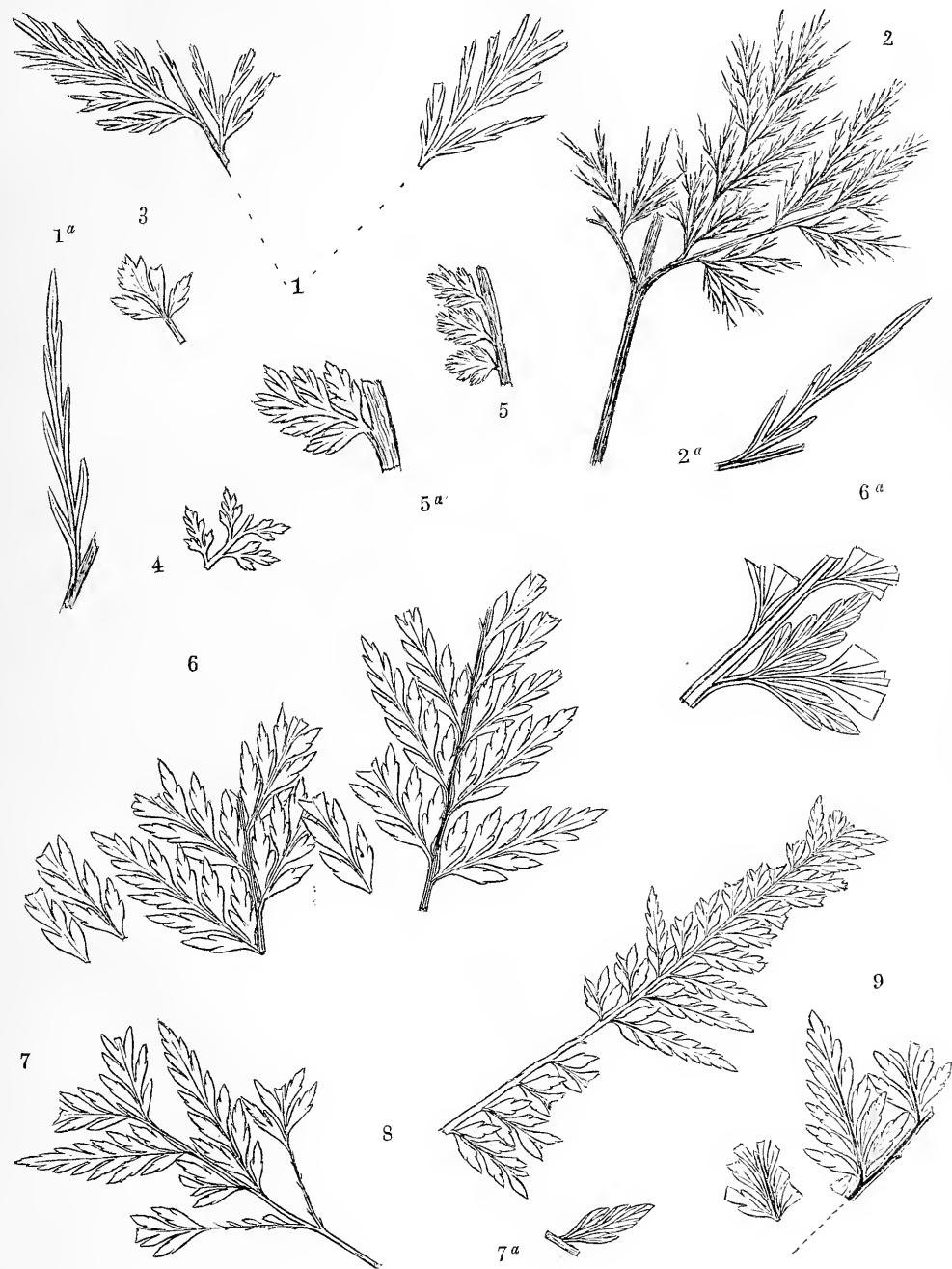


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5. Upper part of a compound pinna	129

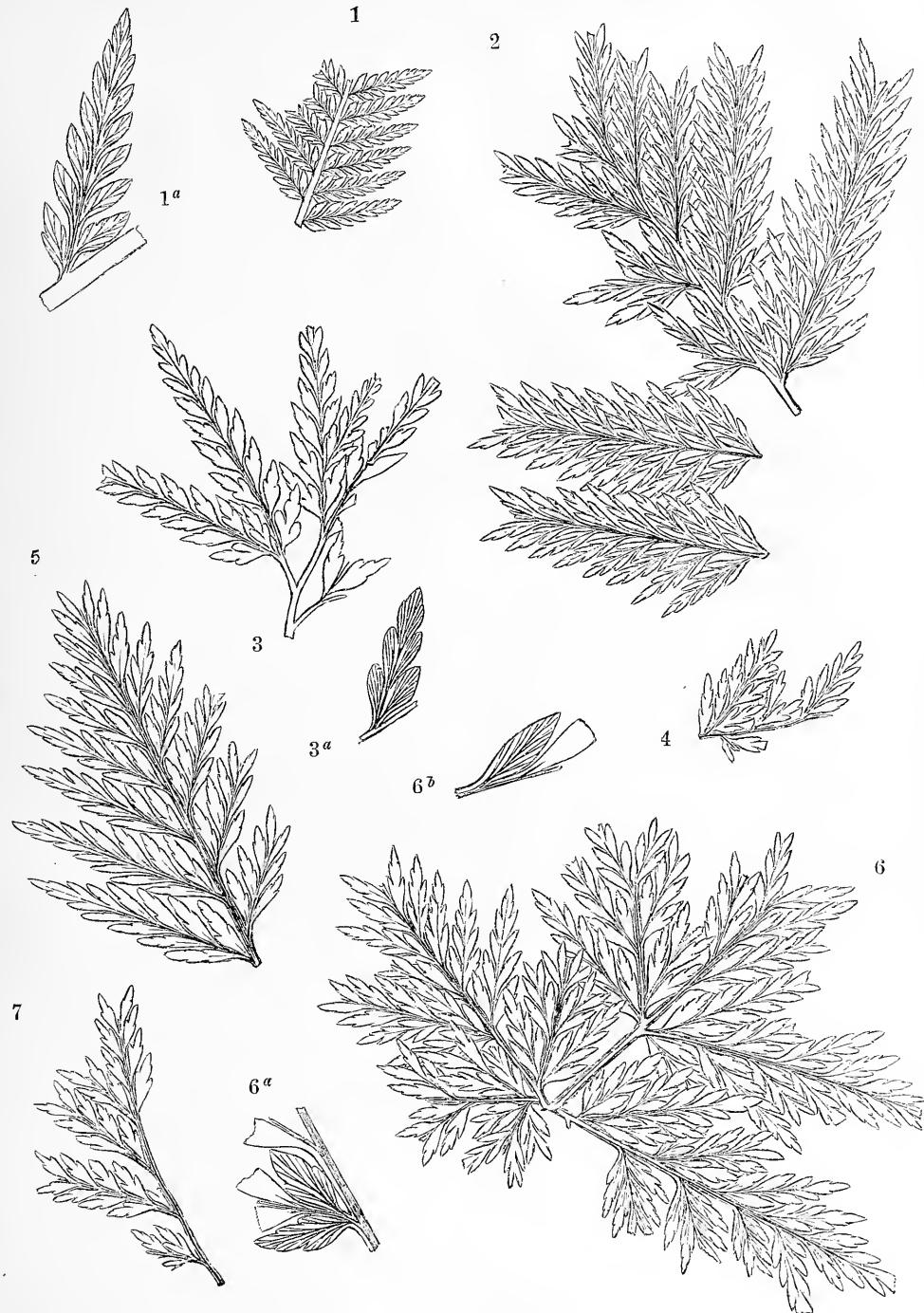


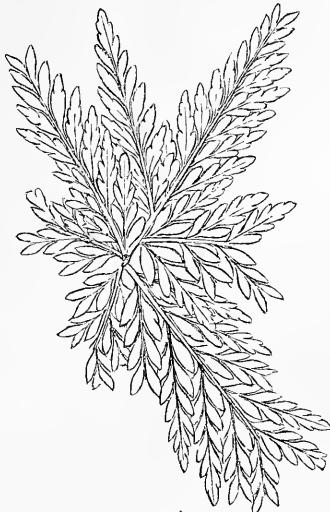
PLATE LII.

PLATE LII.

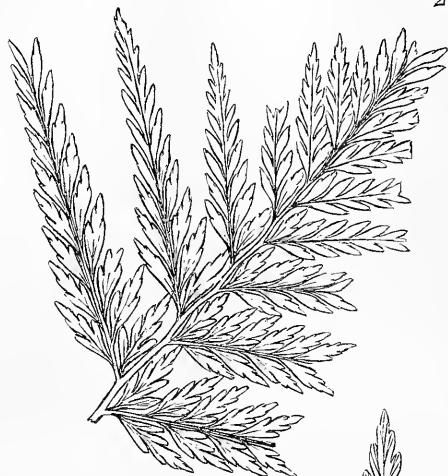
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1^a1^b

1



2



4

2^a4^a

3

5^a5^b

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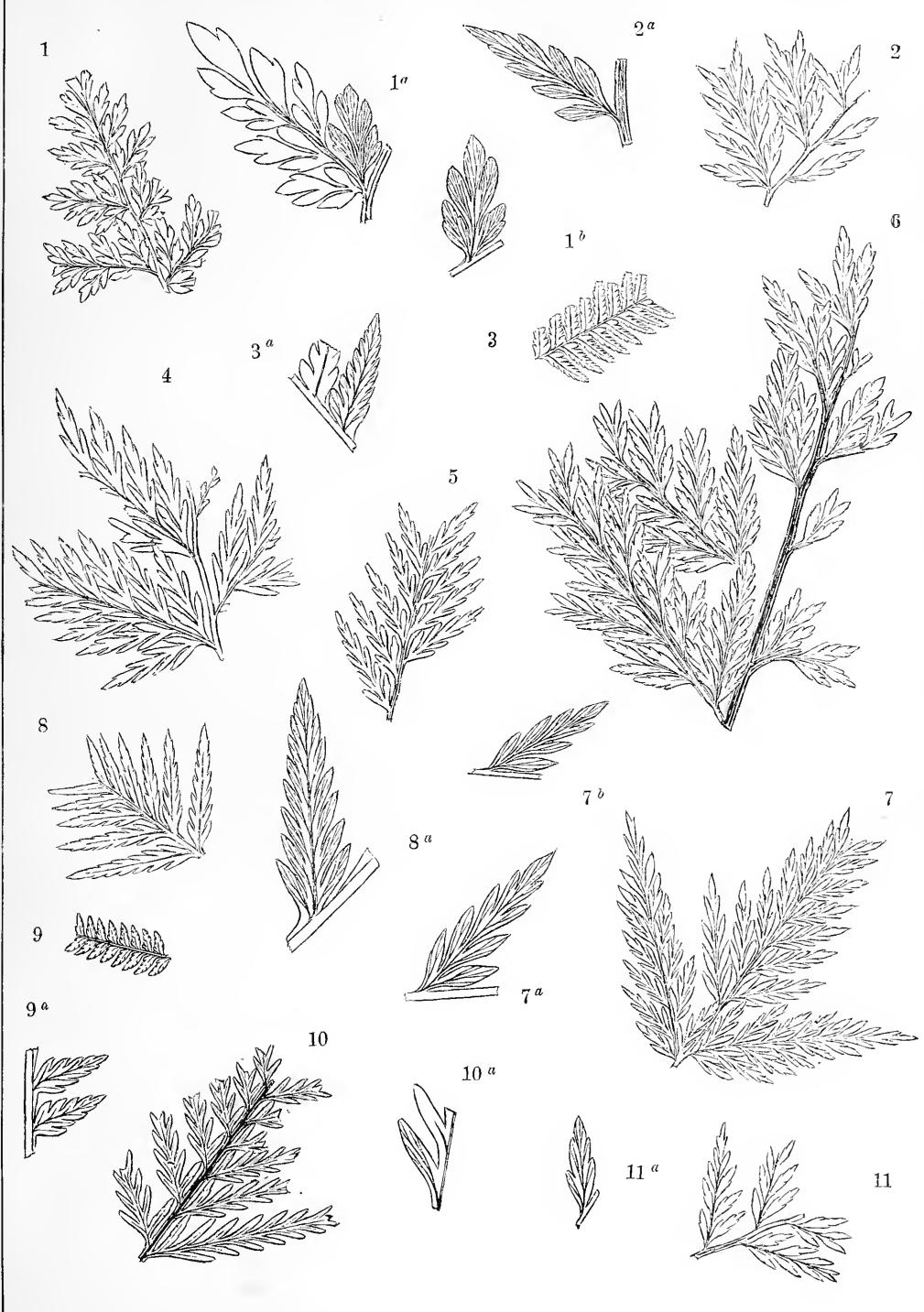




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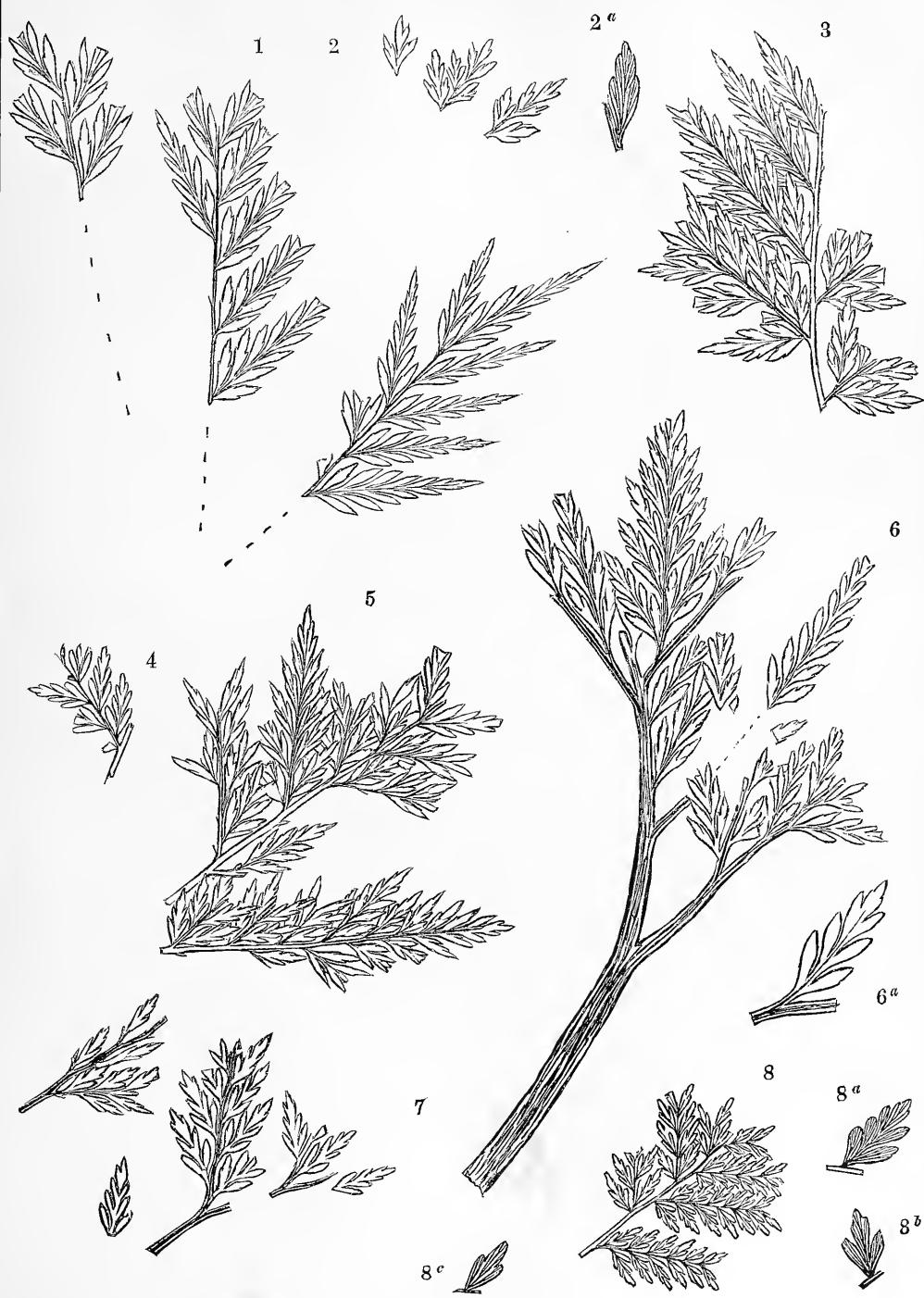




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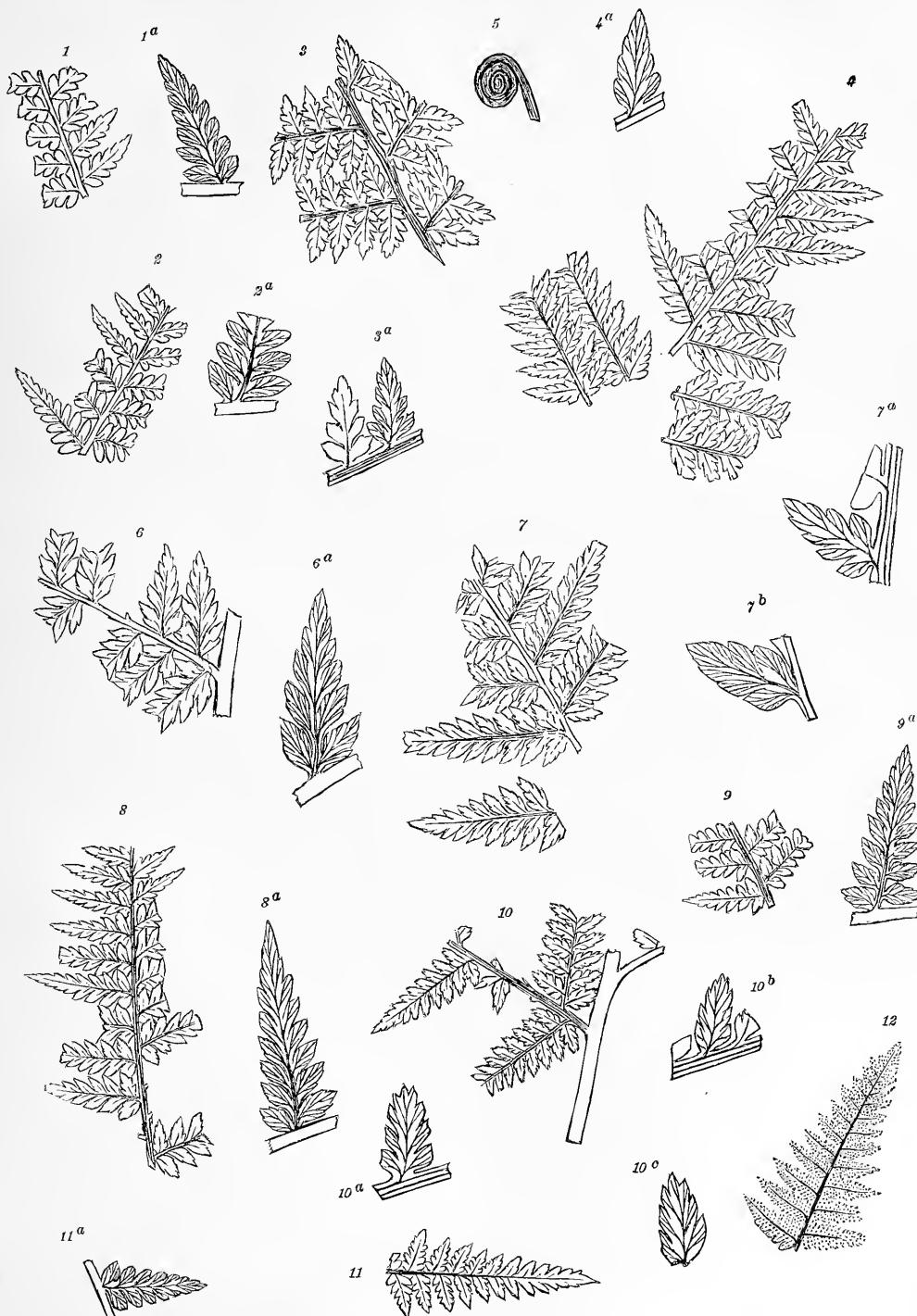


PLATE LX.

PLATE LX.

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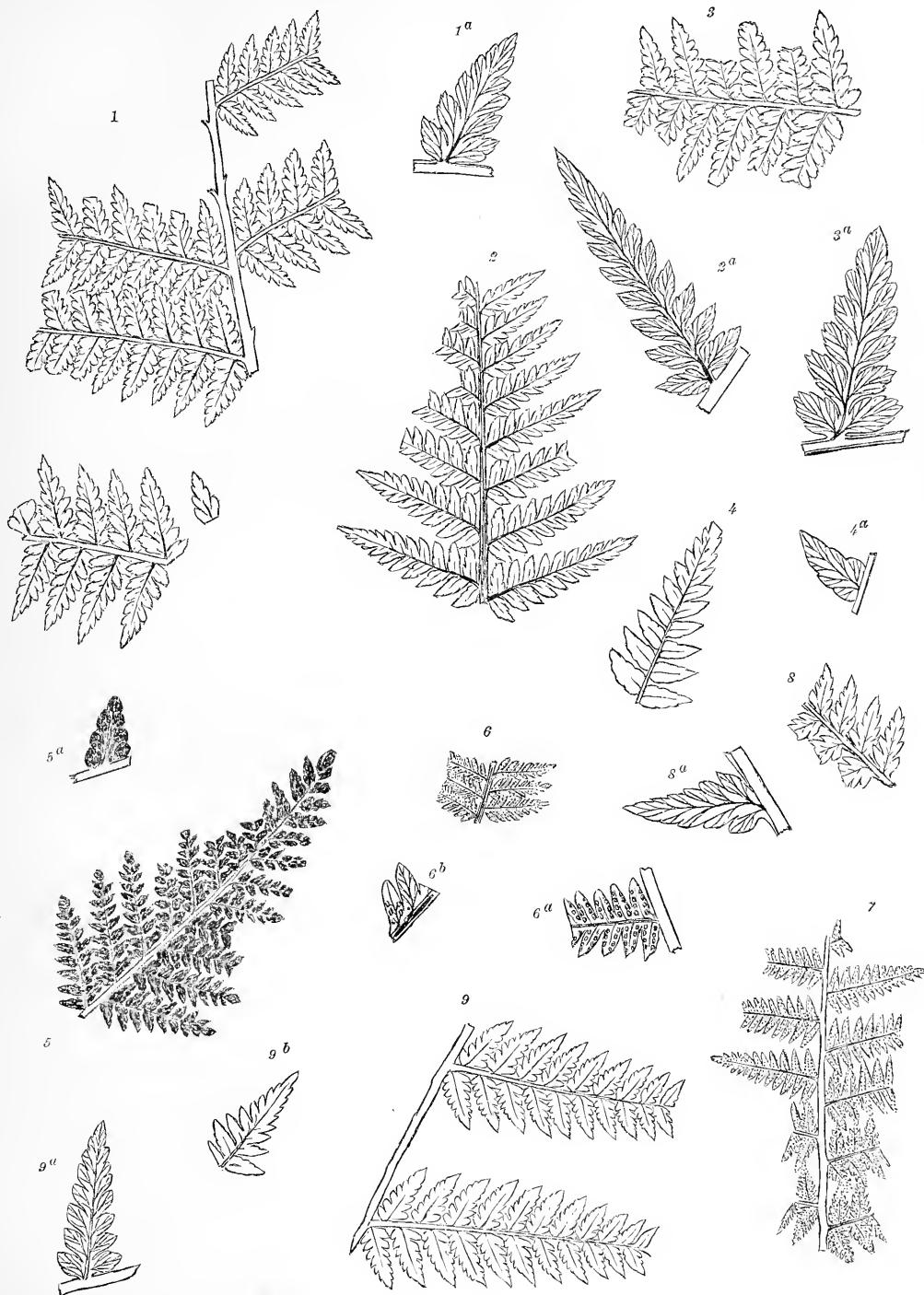


PLATE LXI.

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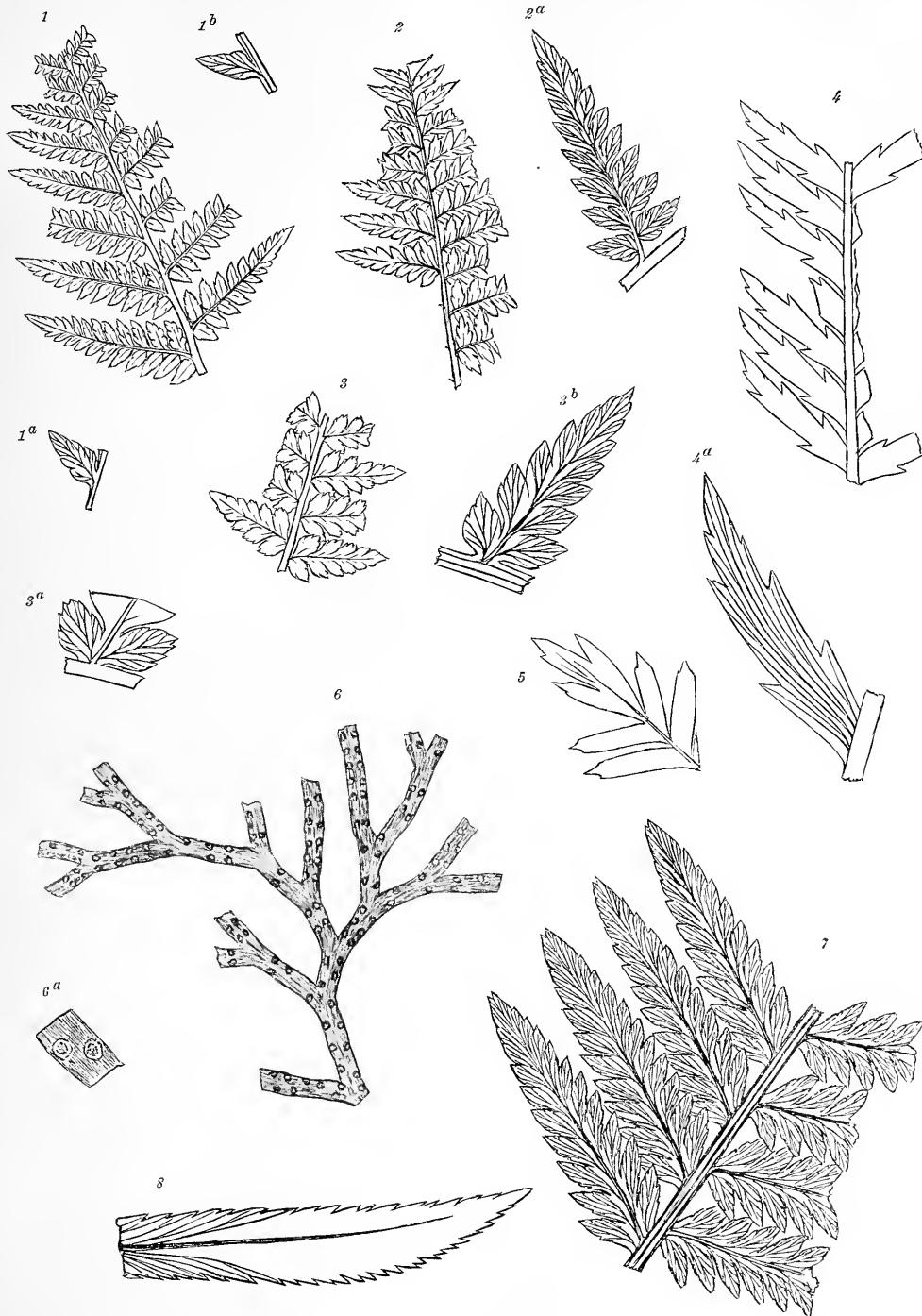




PLATE LXII.

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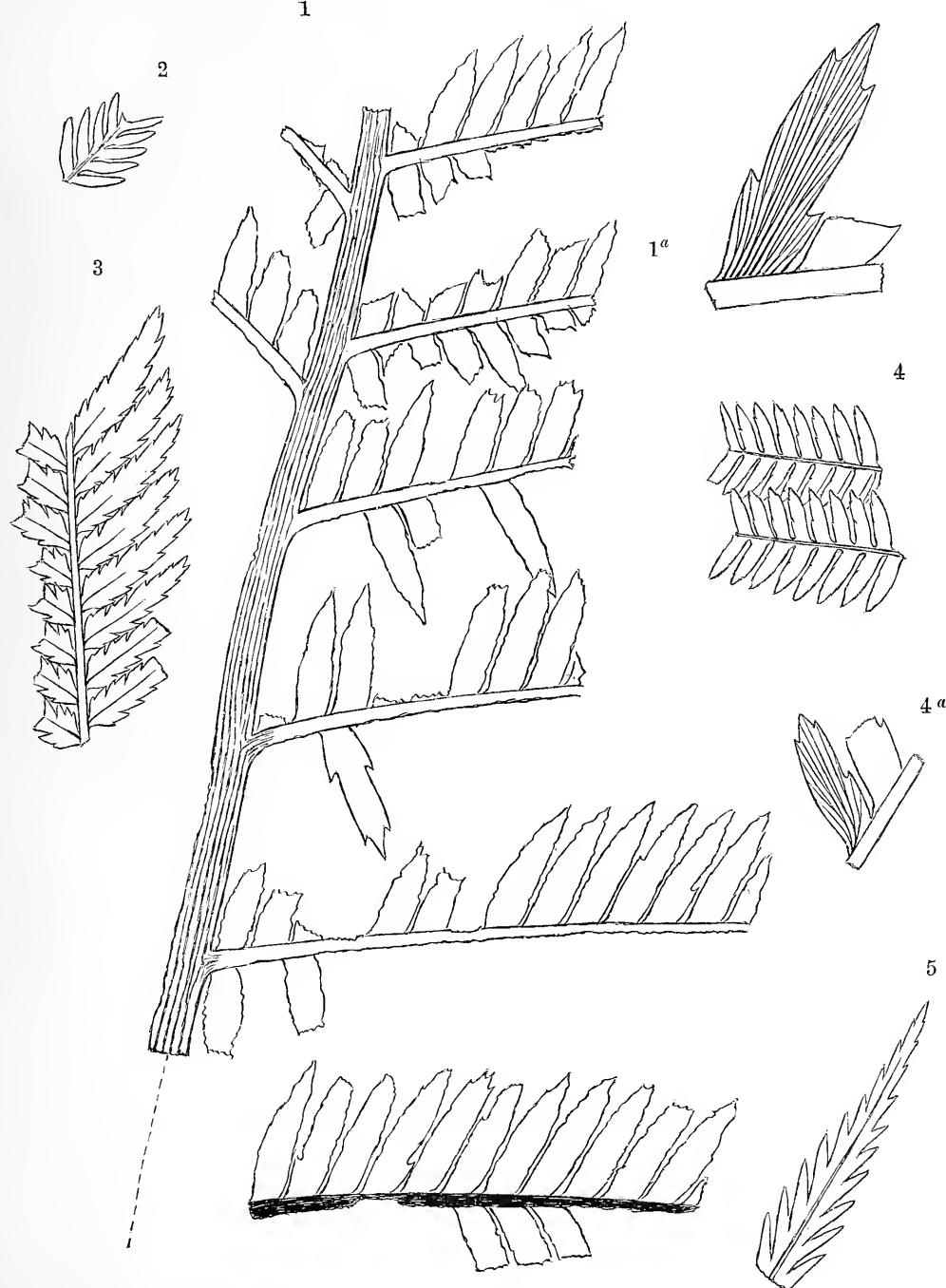


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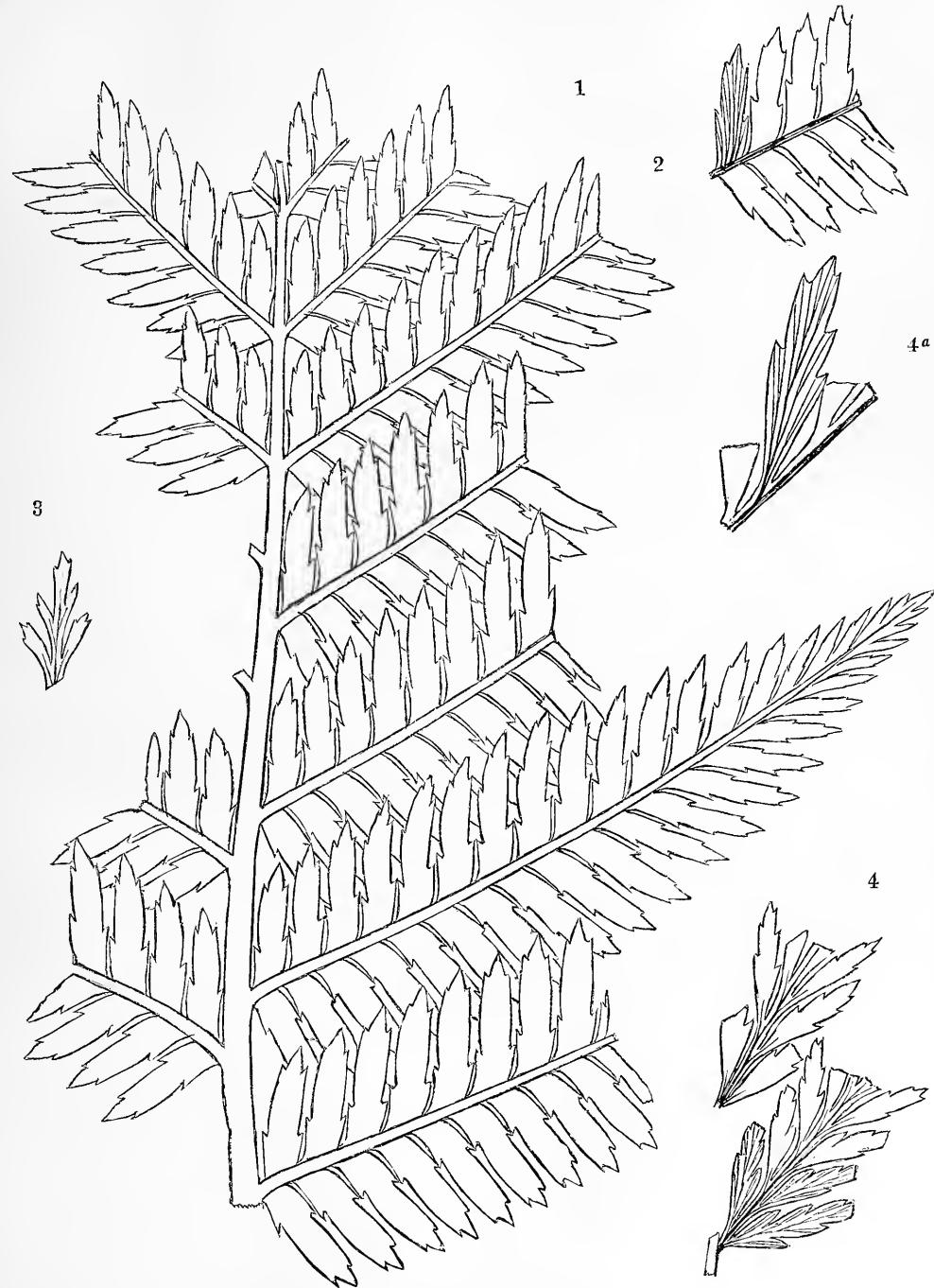




PLATE LXIV.

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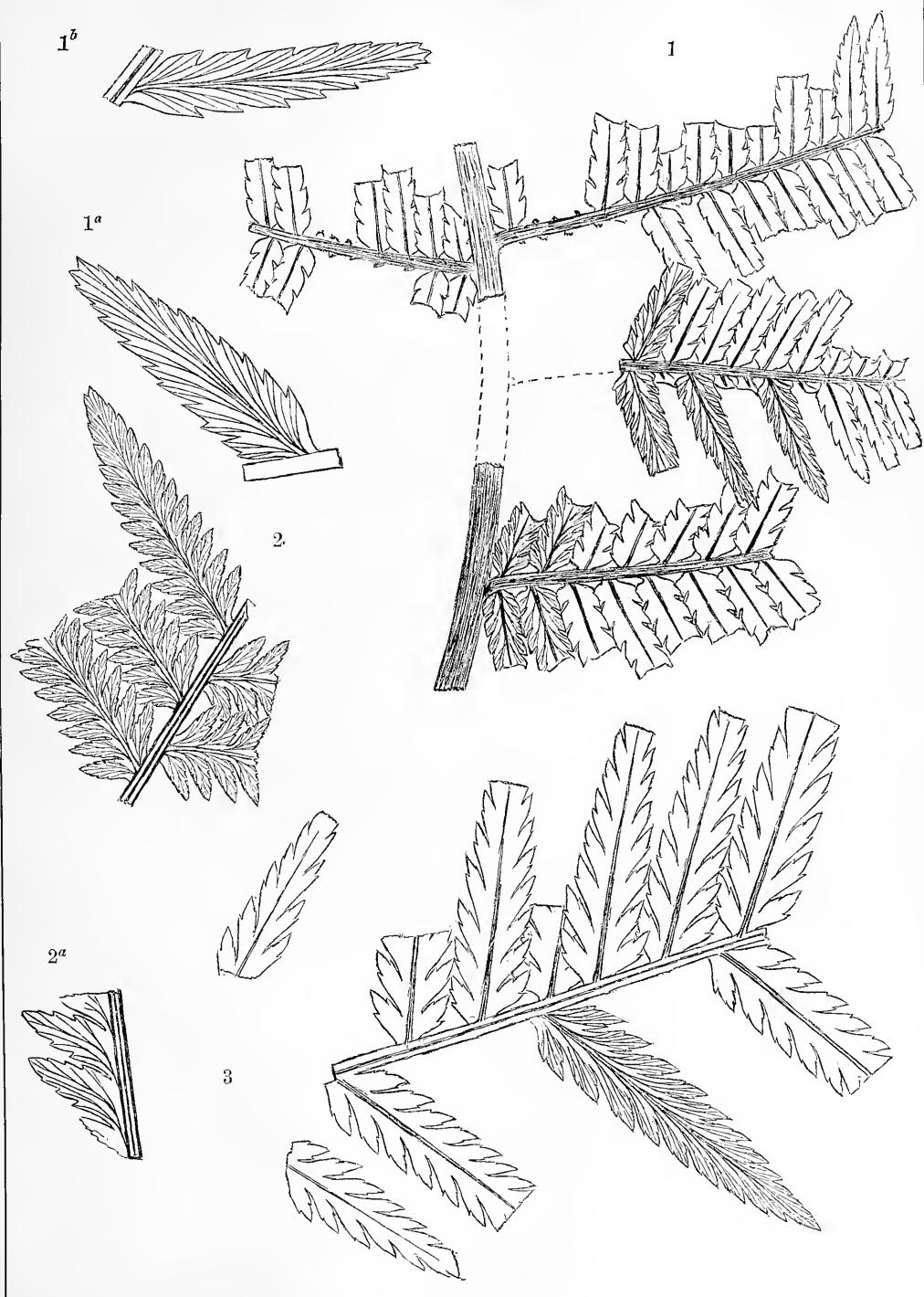




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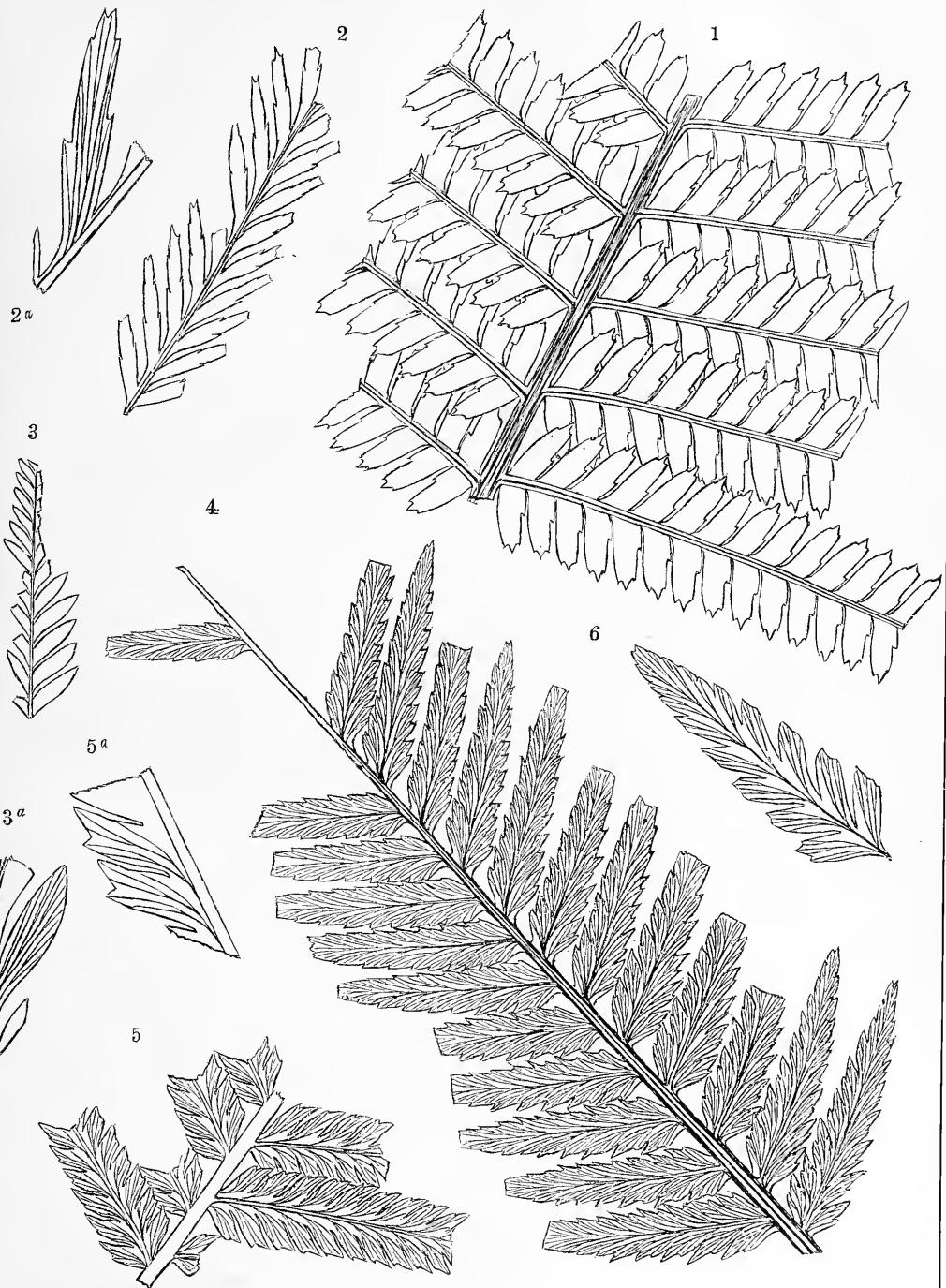


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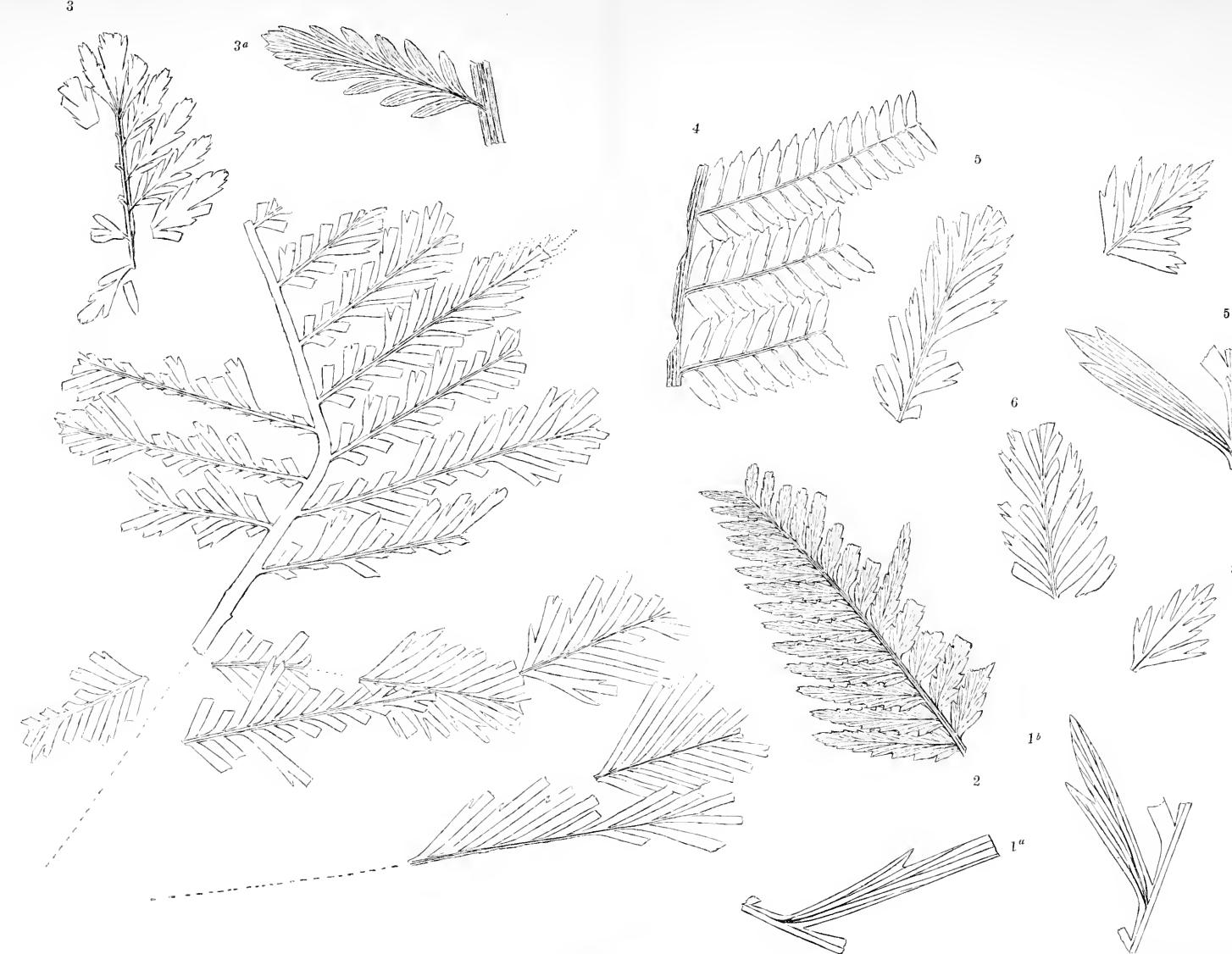






PLATE LXVII.

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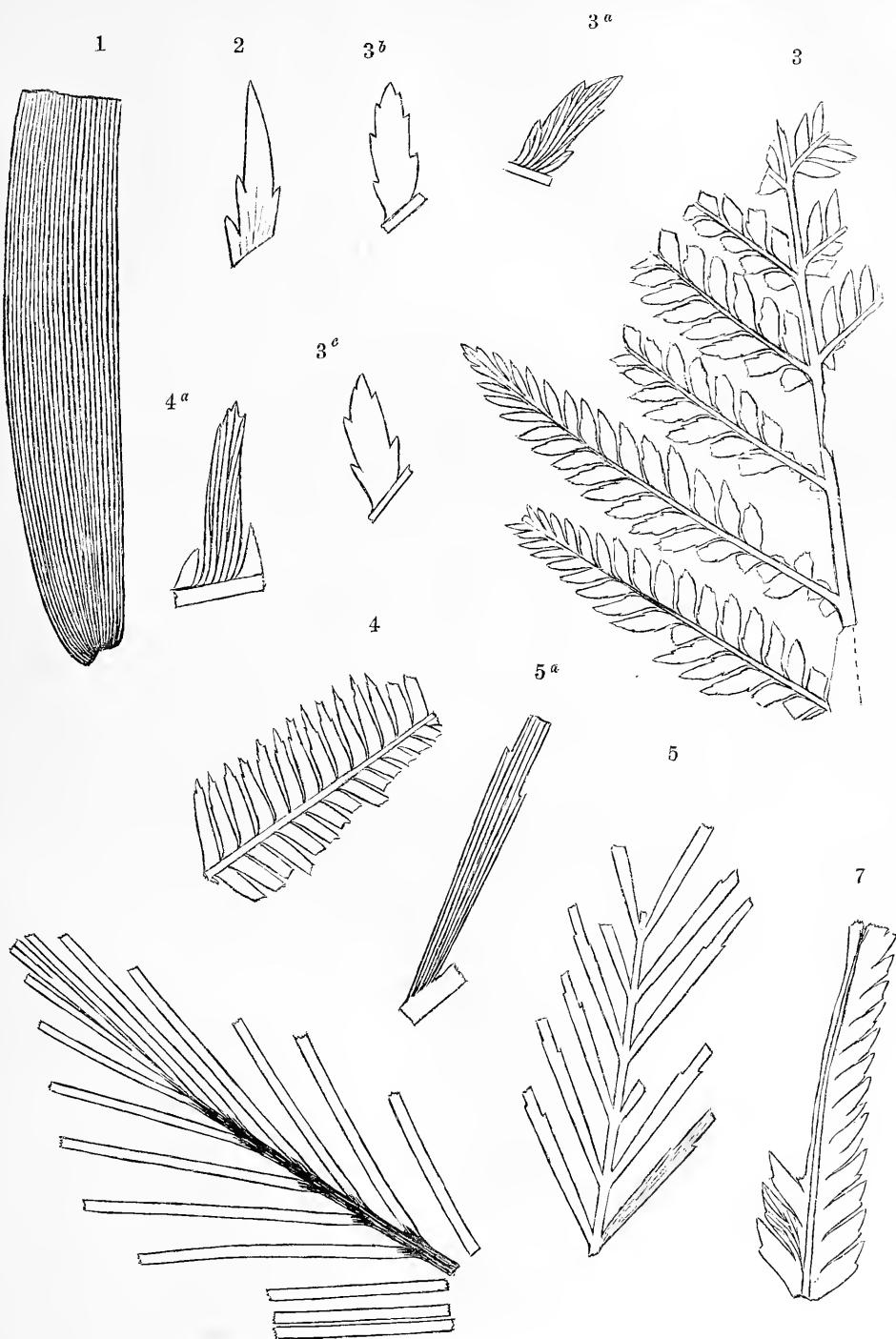




PLATE LXVIII.

PLATE LXVIII.

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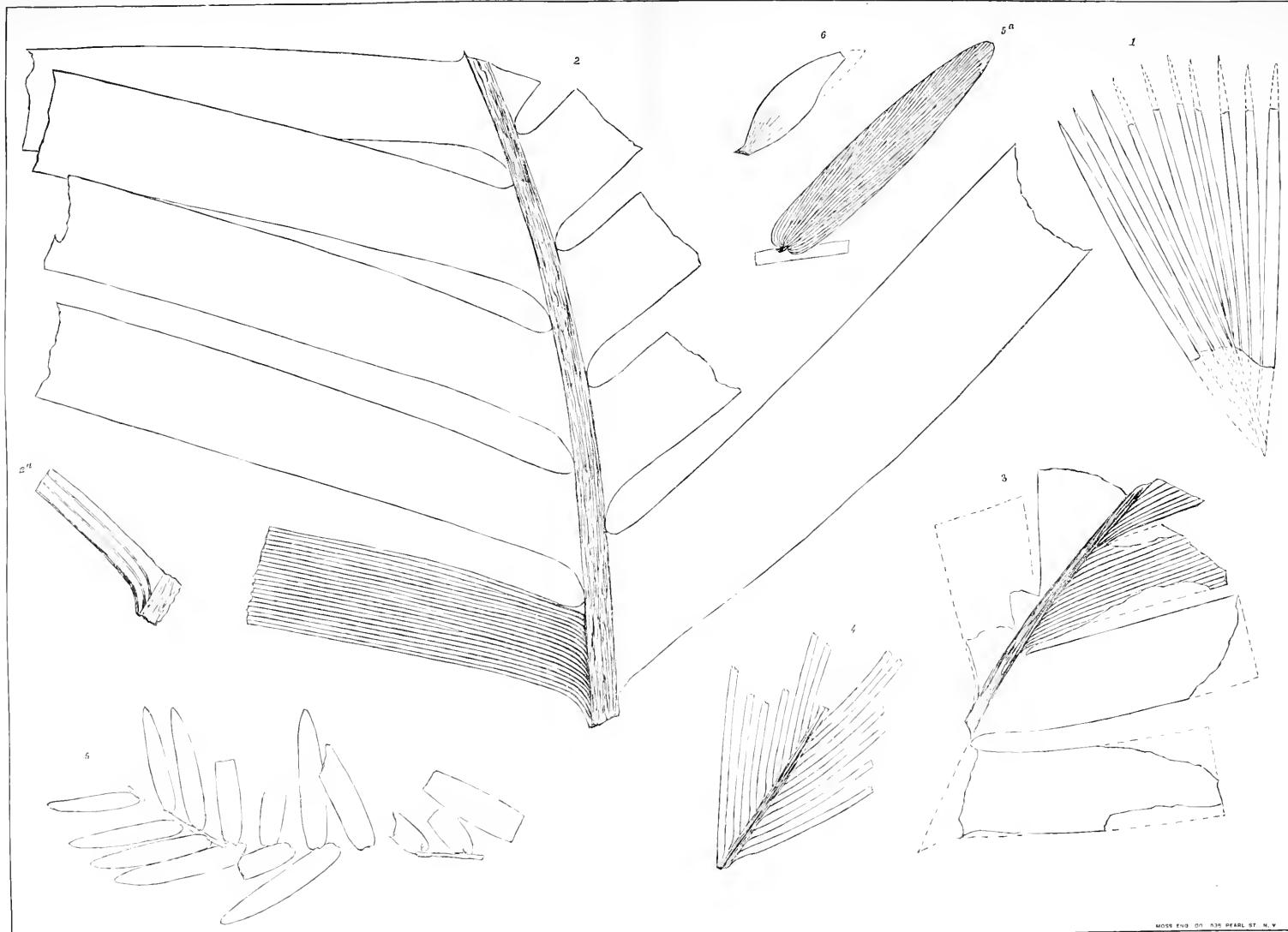






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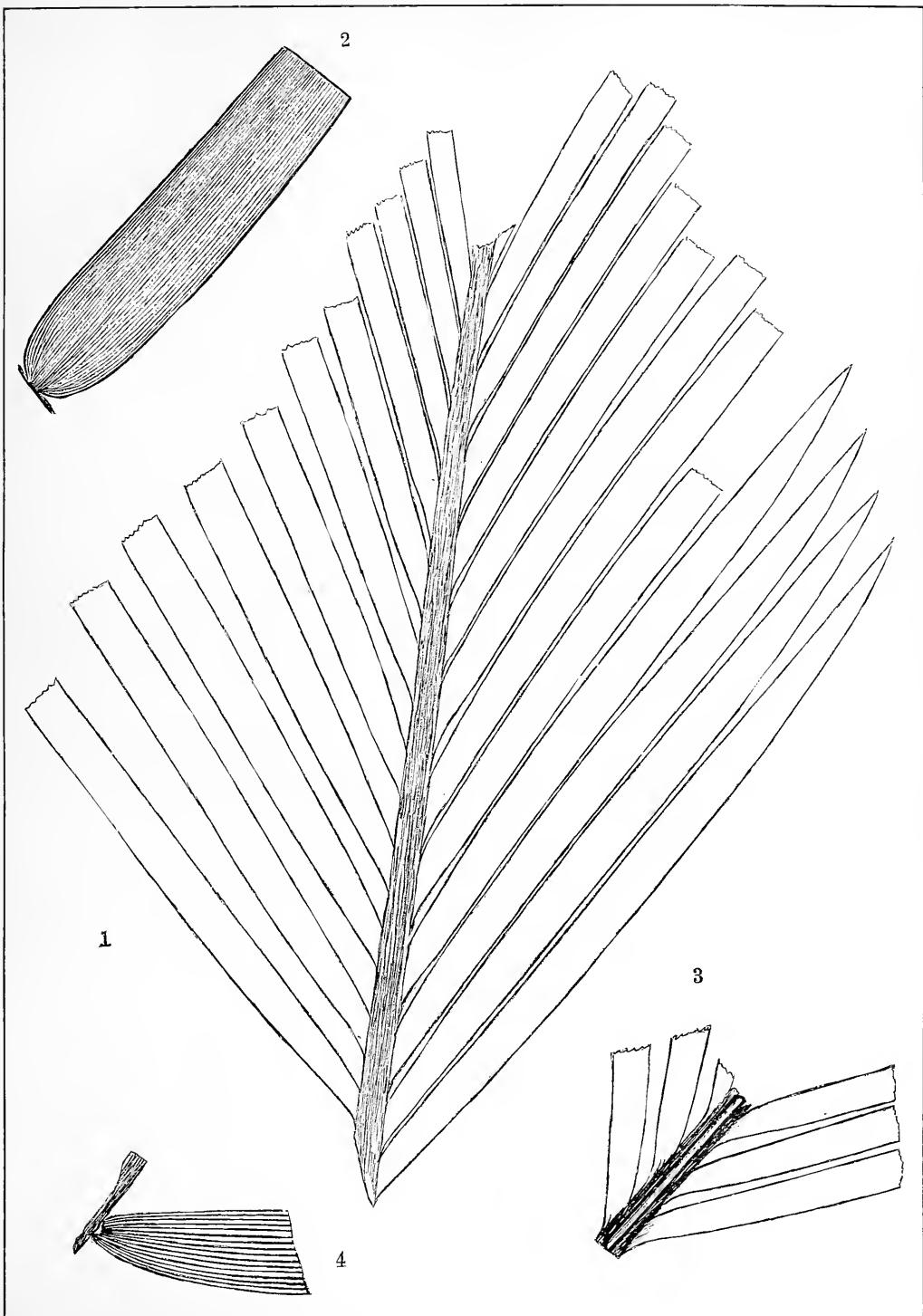


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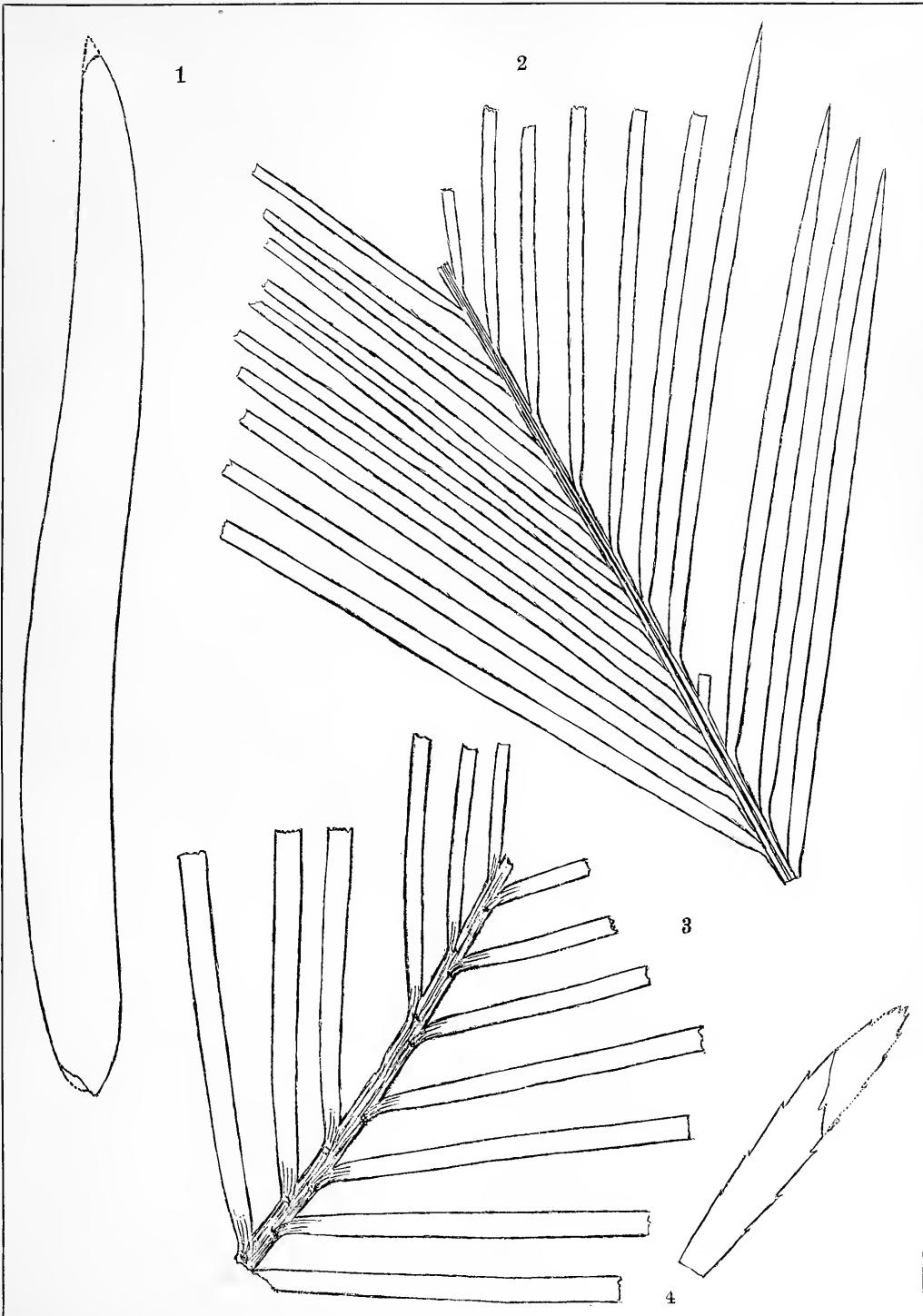


PLATE LXXI.

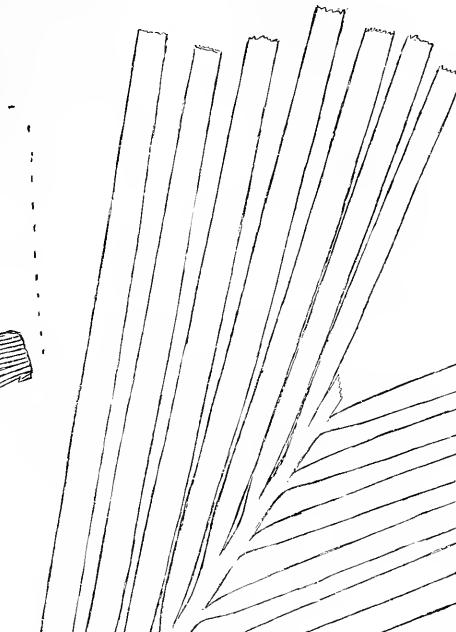
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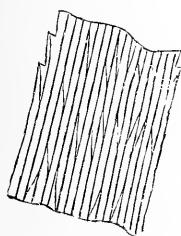
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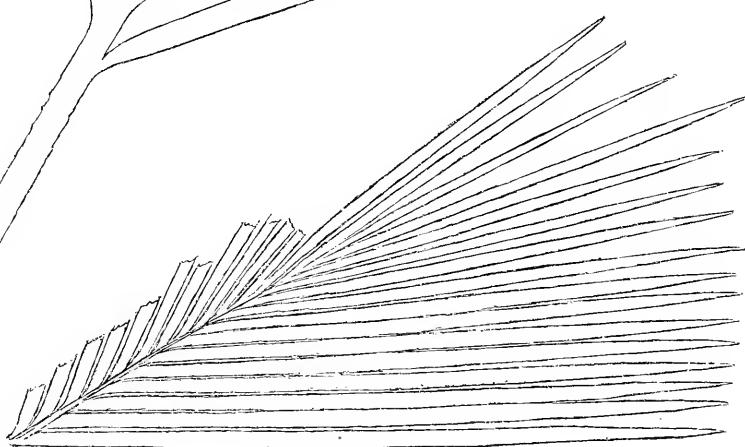
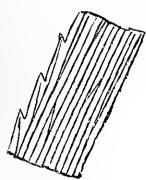
1



4 a



4



2

PLATE LXXII.

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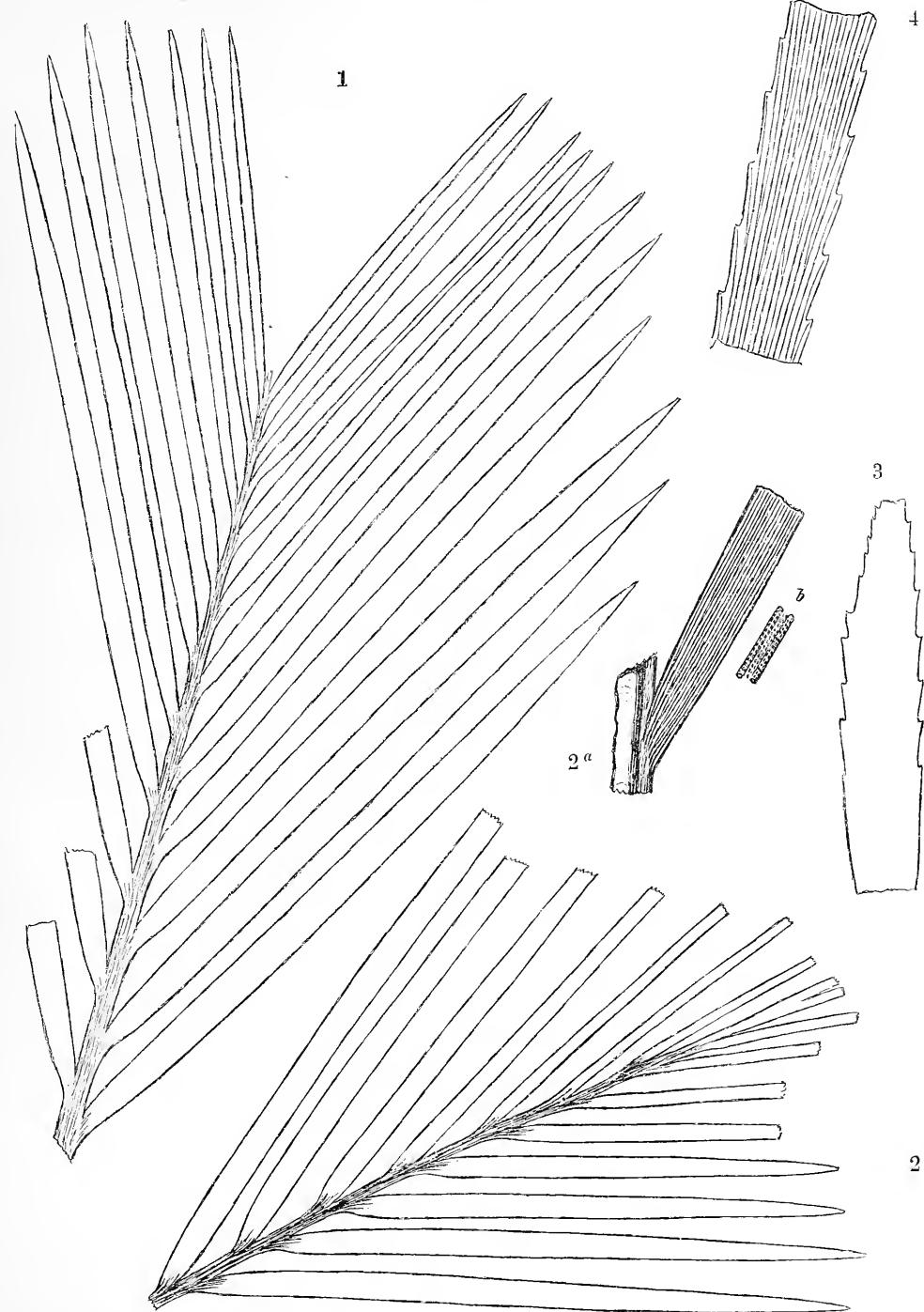


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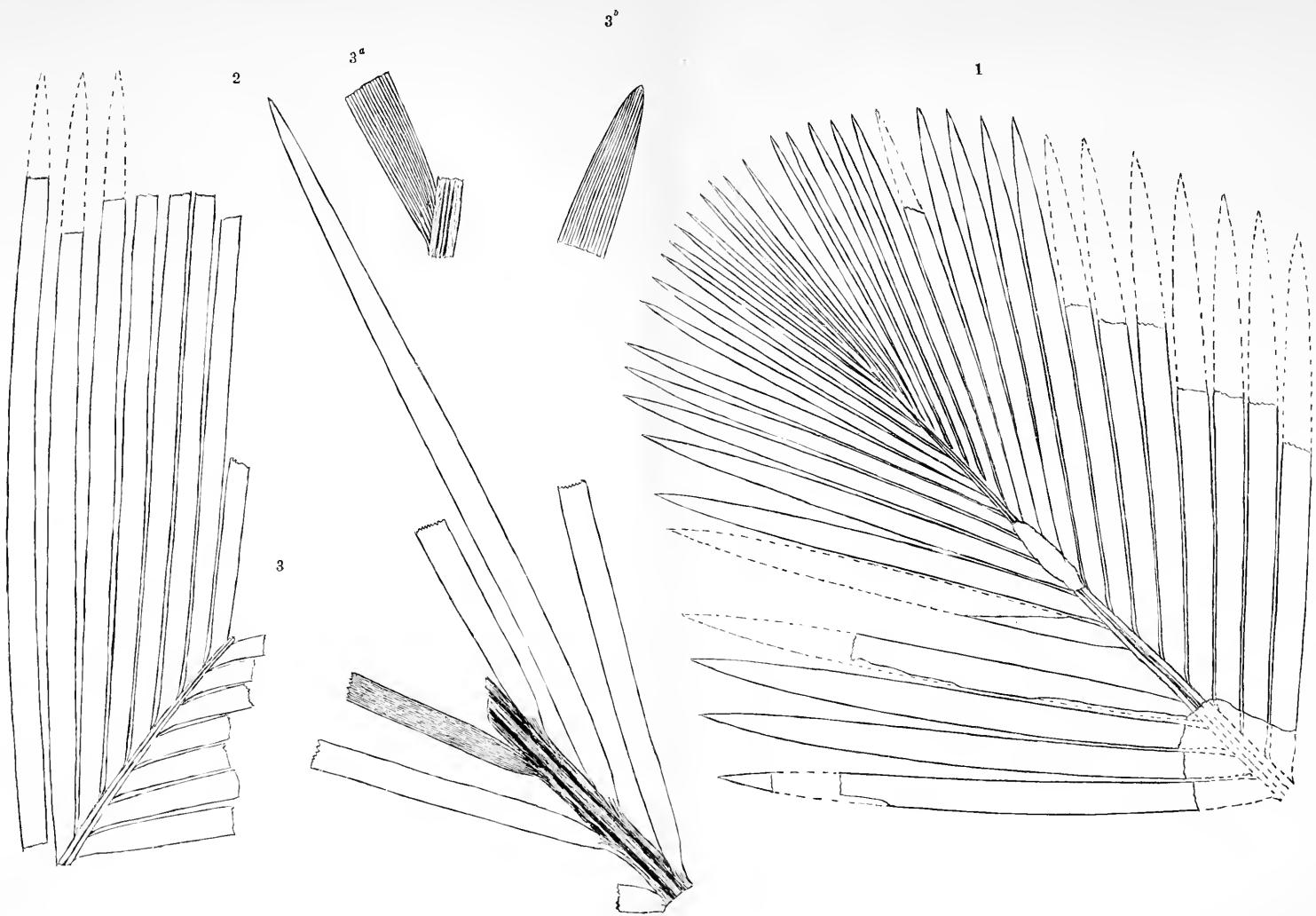






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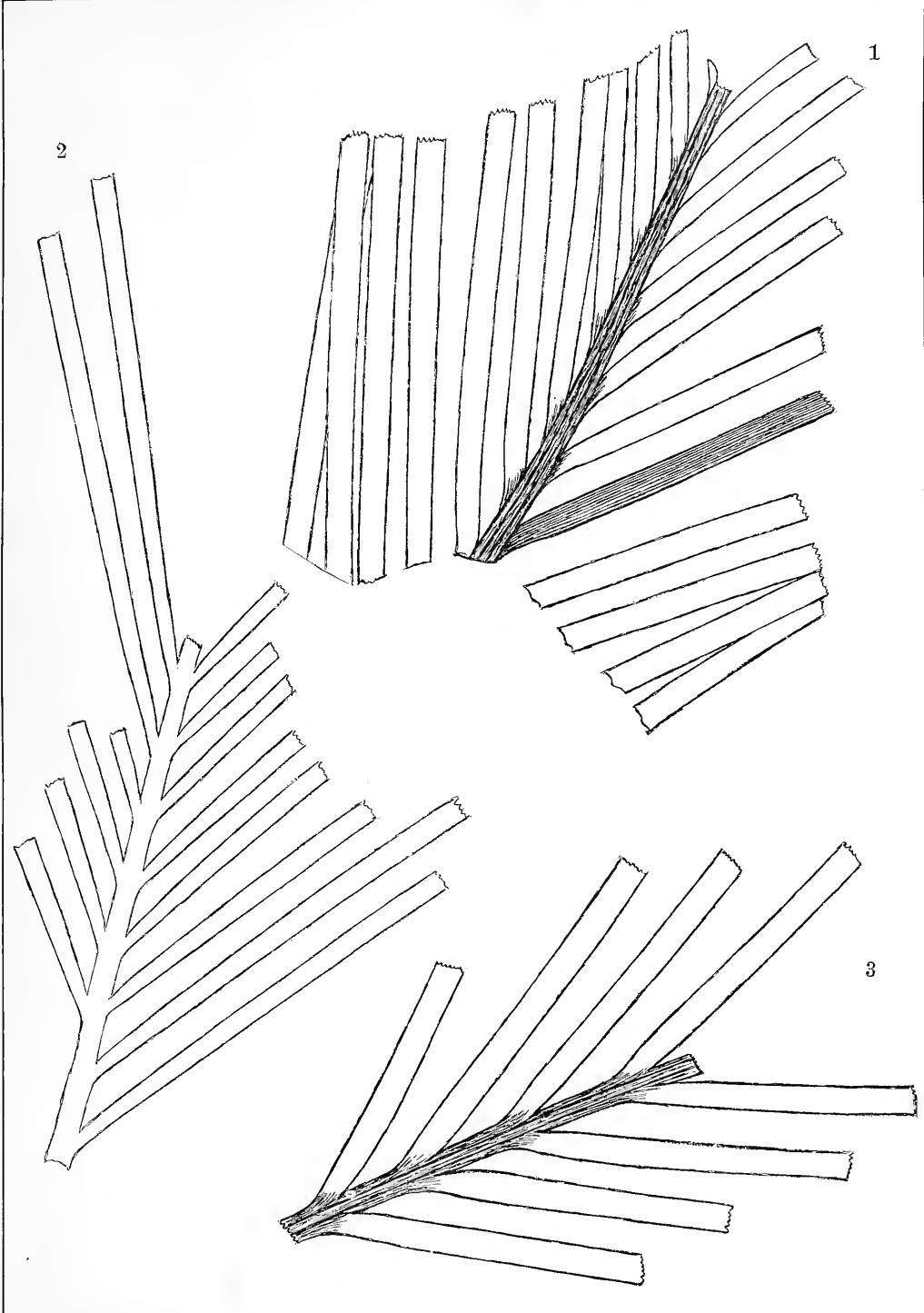




PLATE LXXV.

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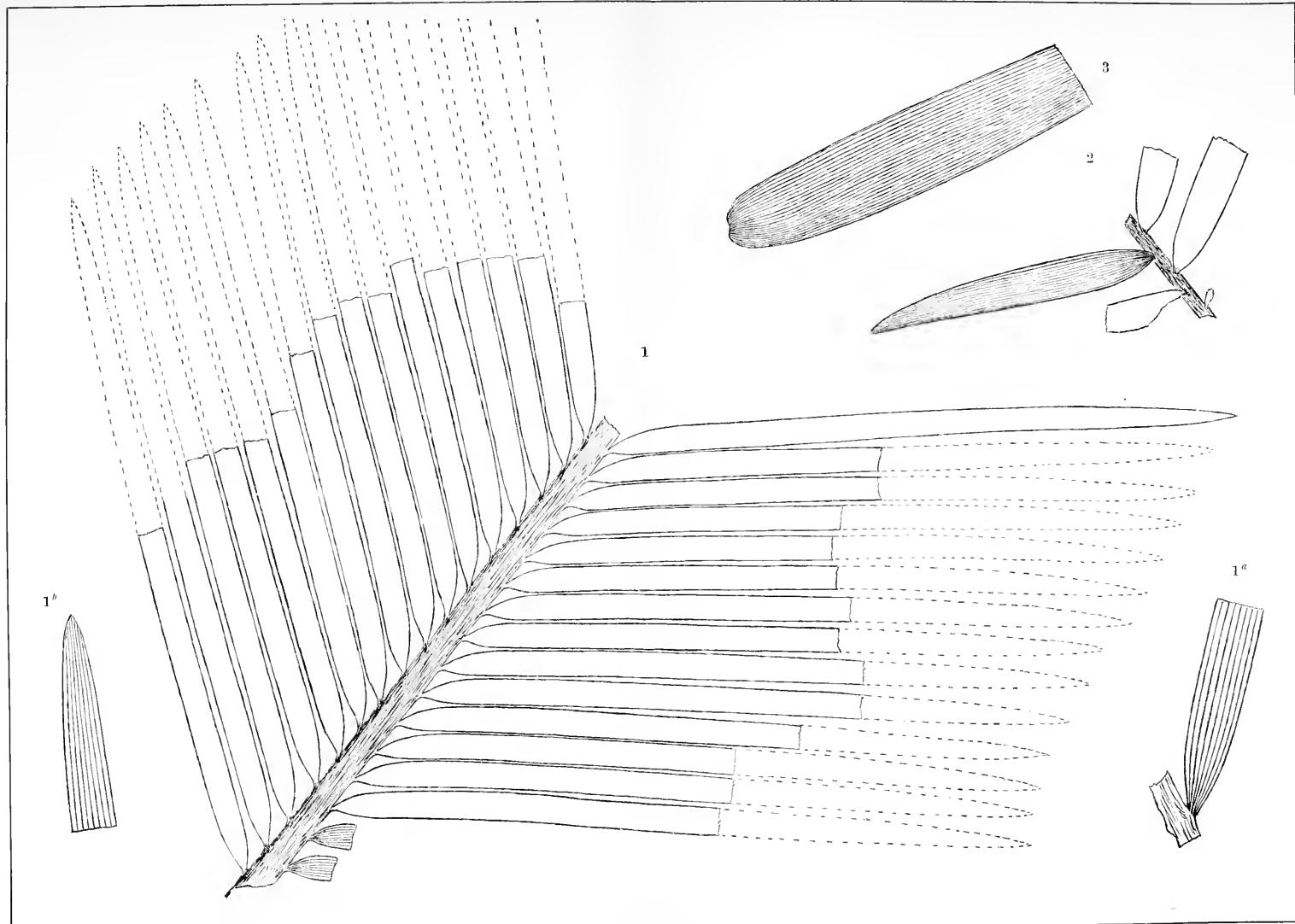




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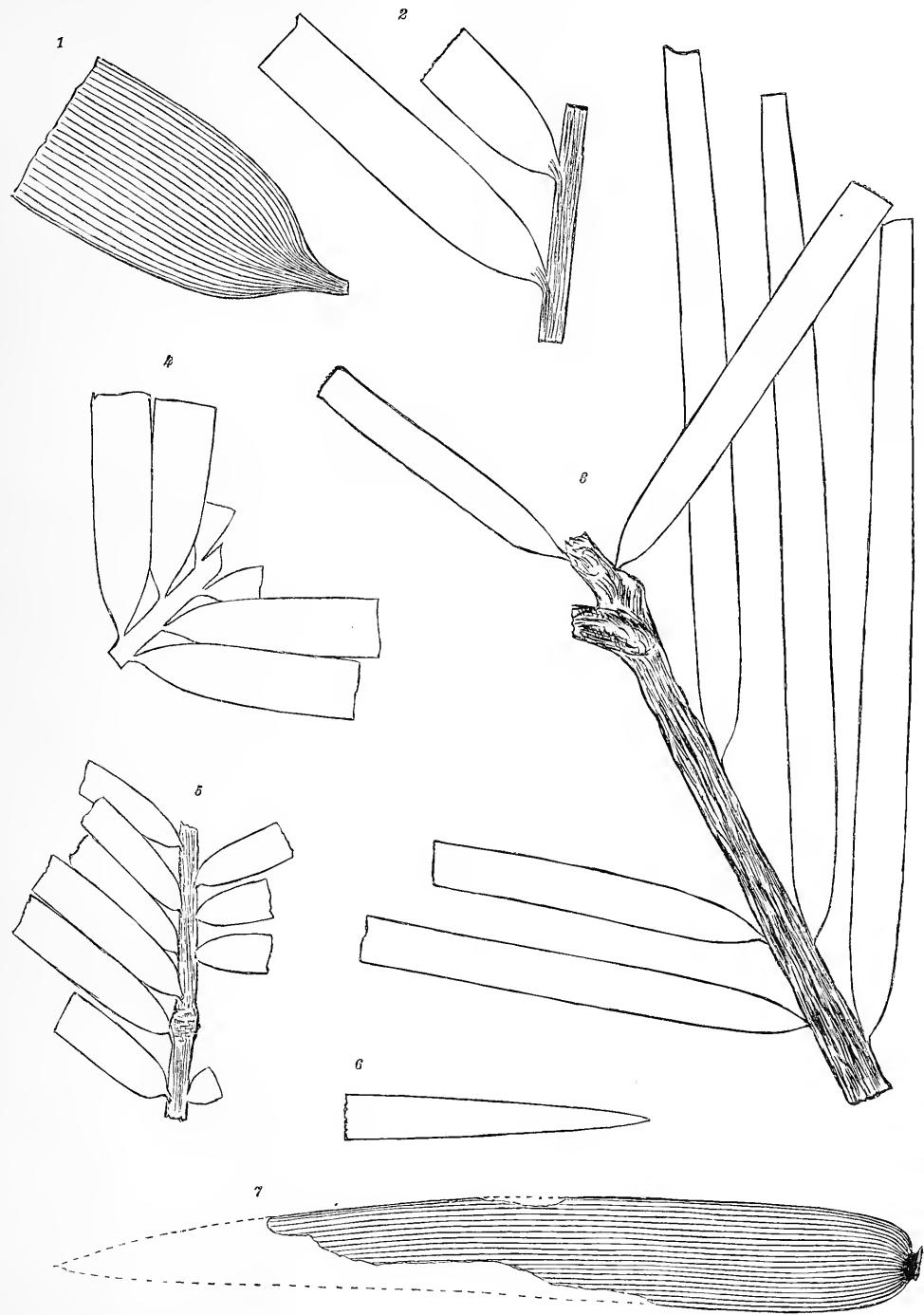


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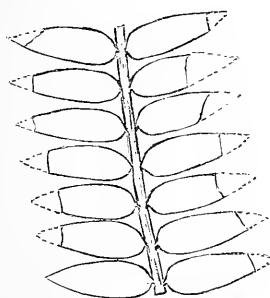
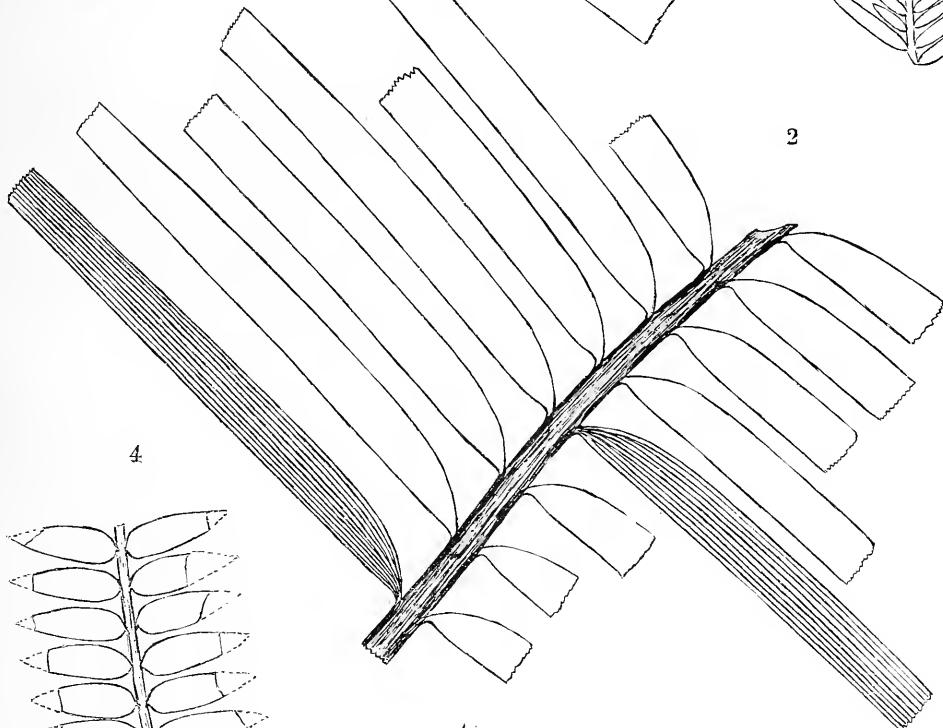
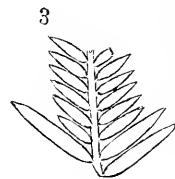
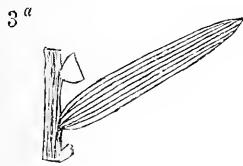
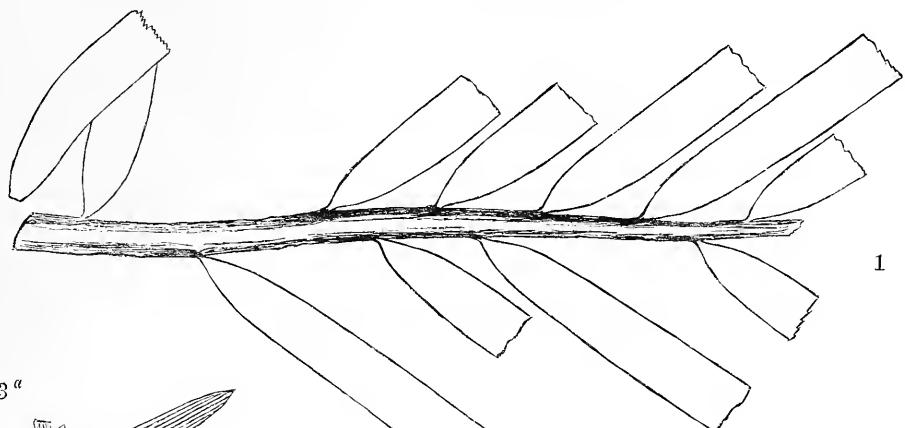


PLATE LXXVIII.

PLATE LXXXVIII.

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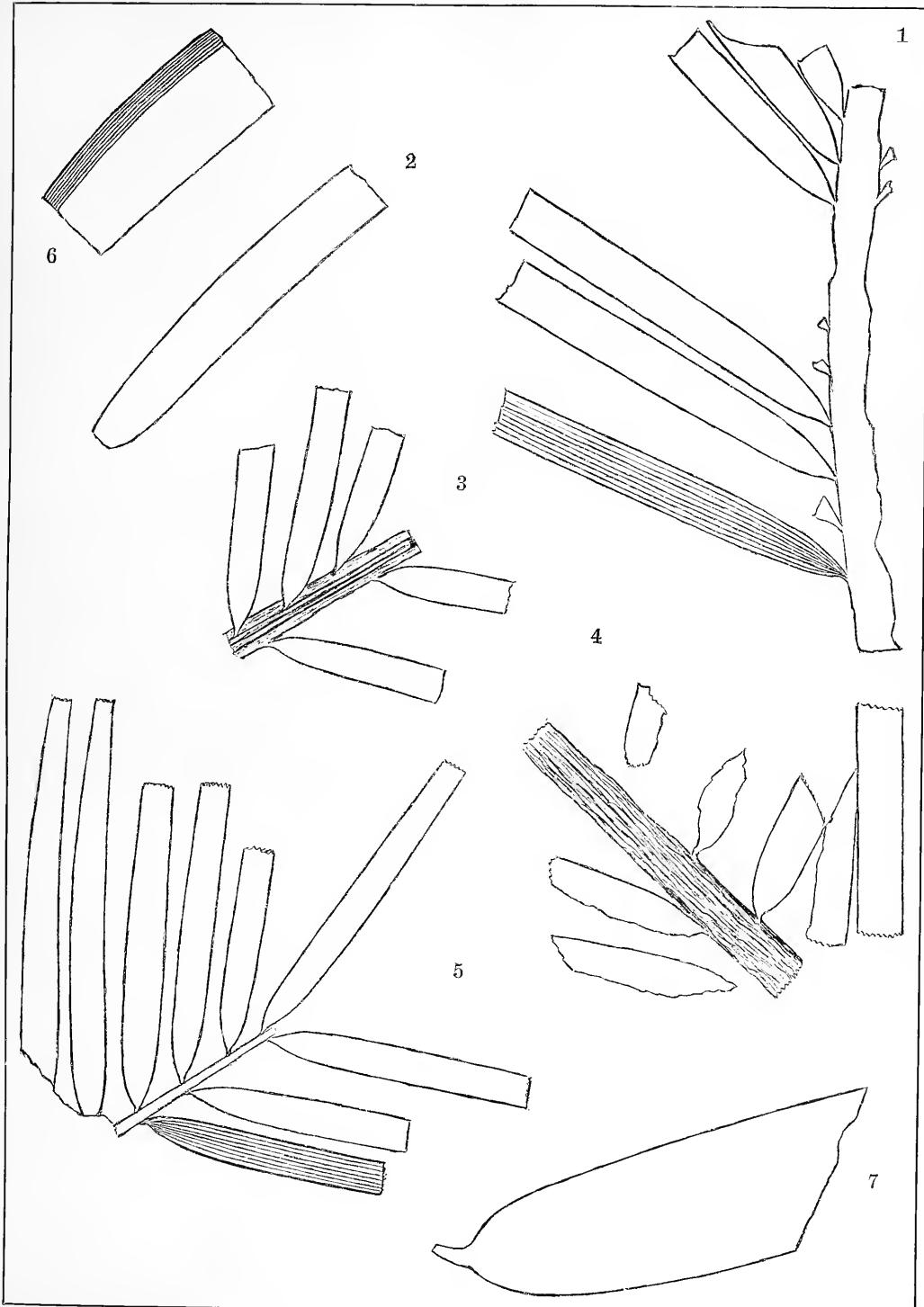




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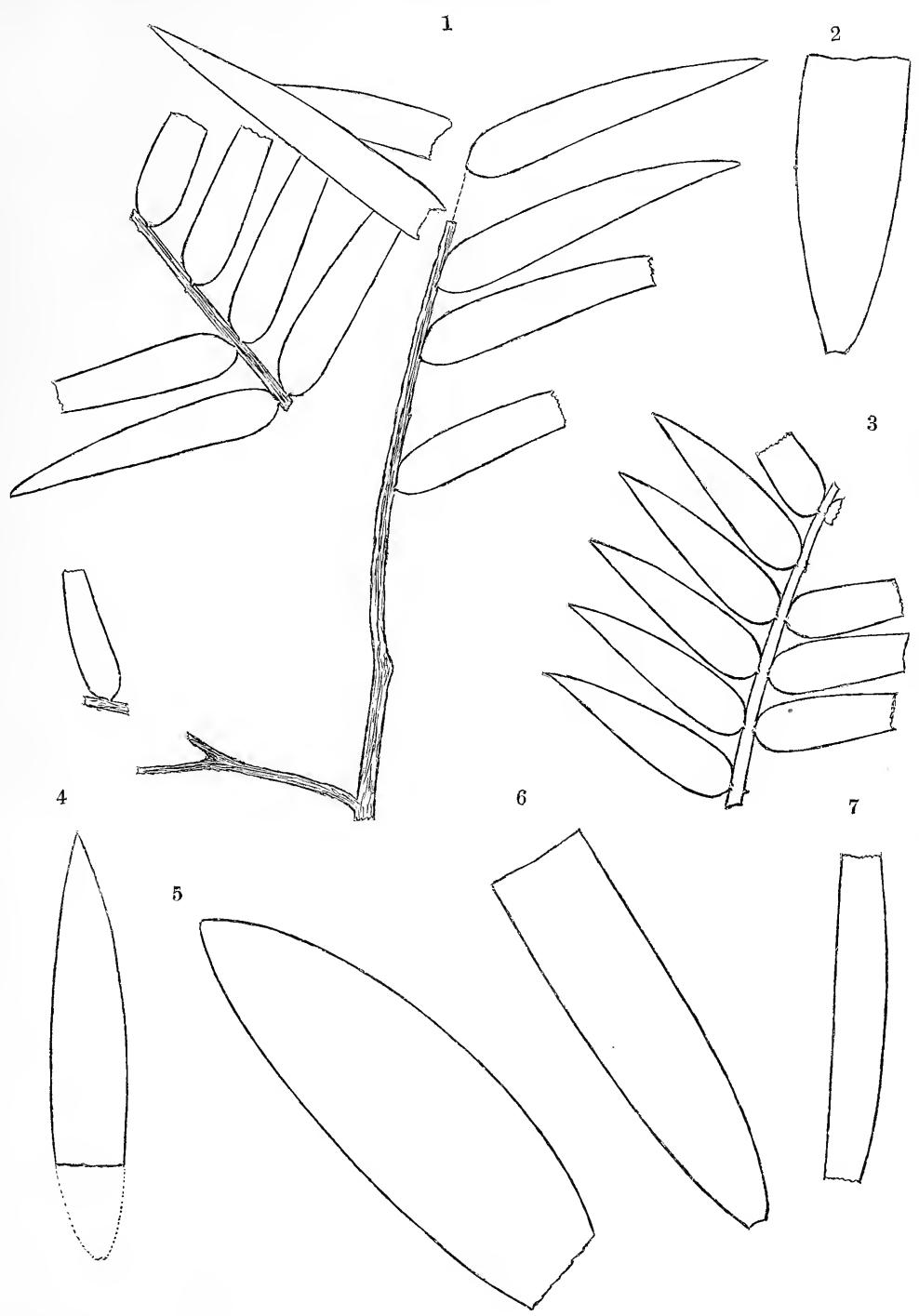




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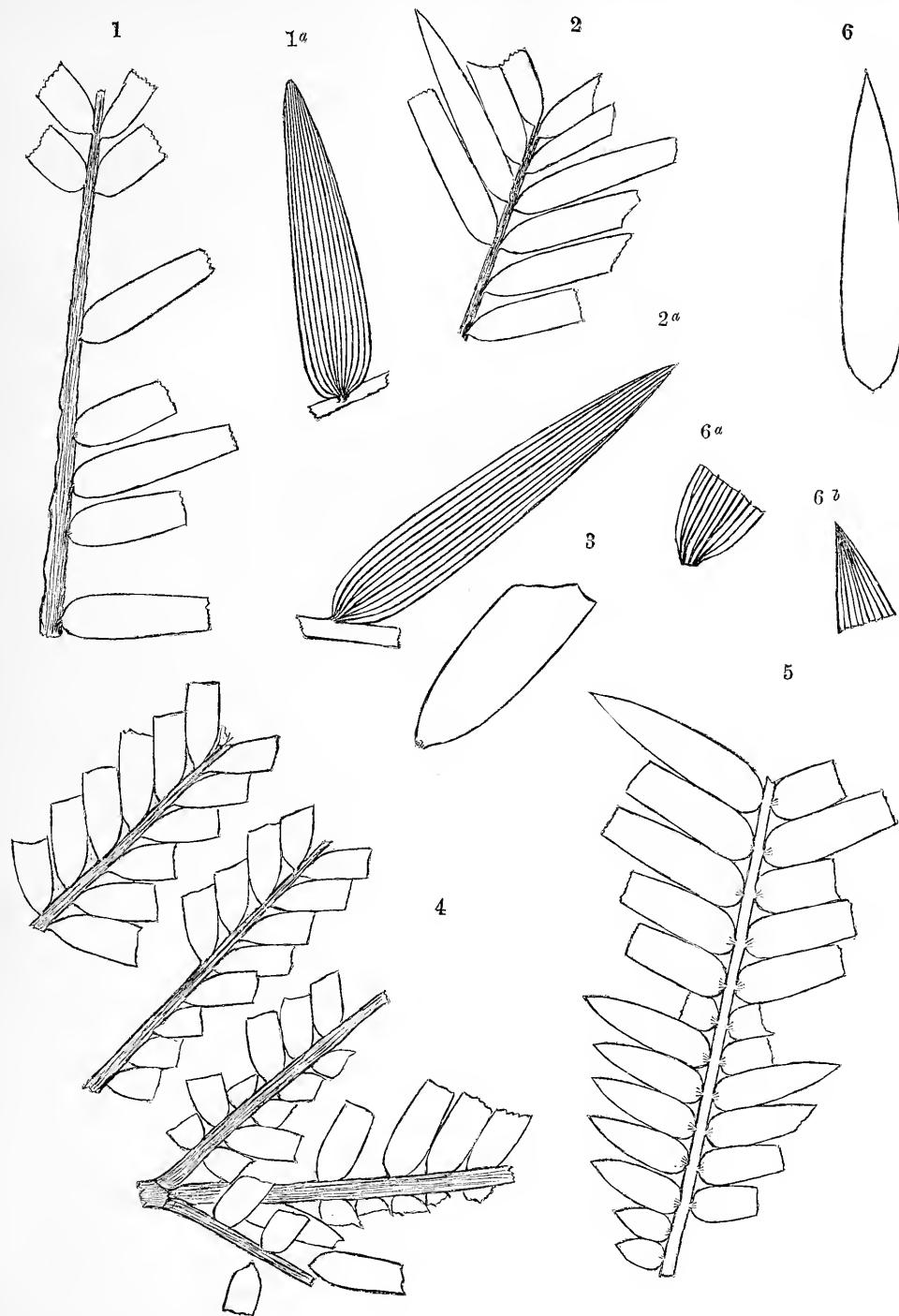




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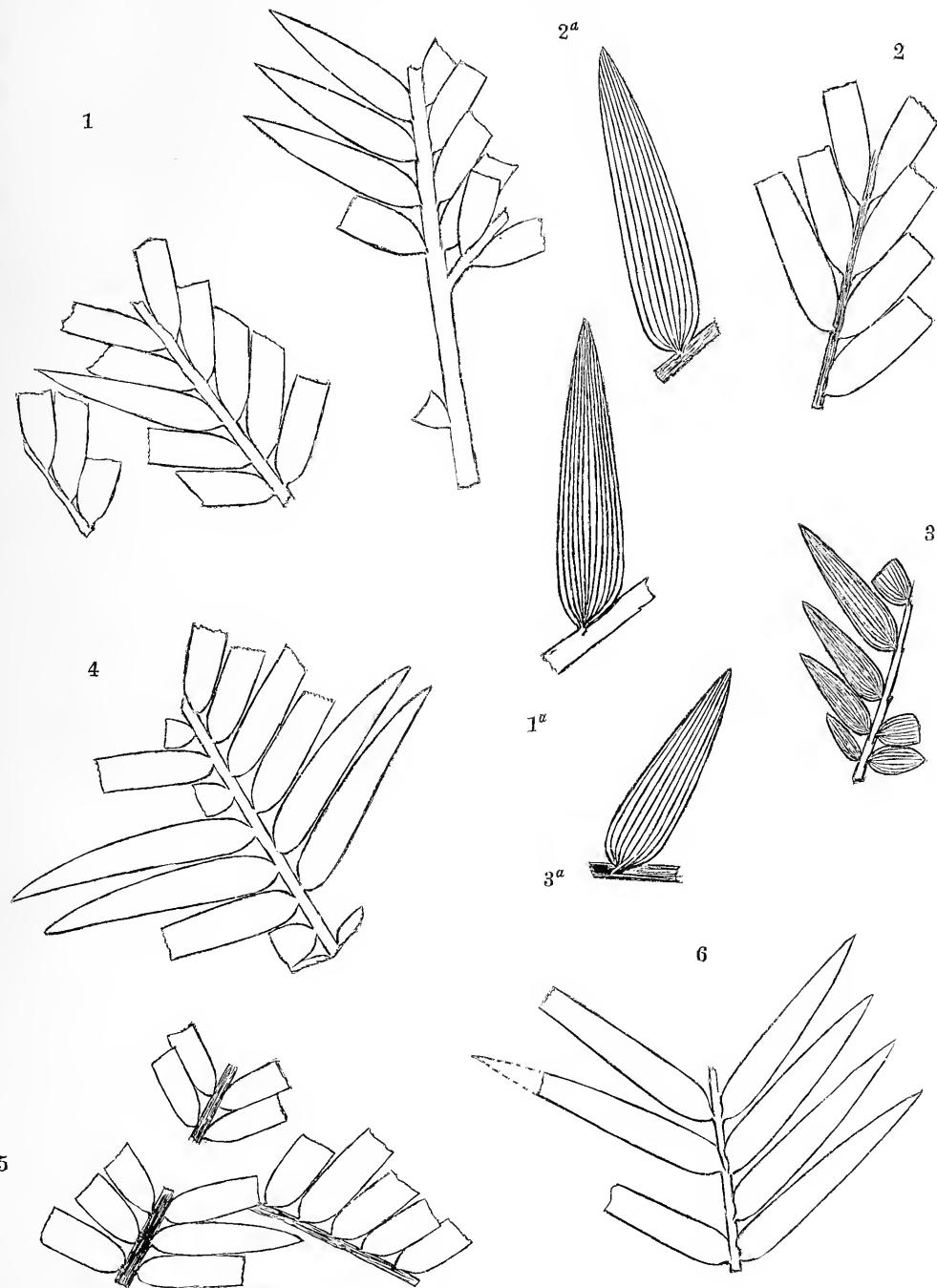


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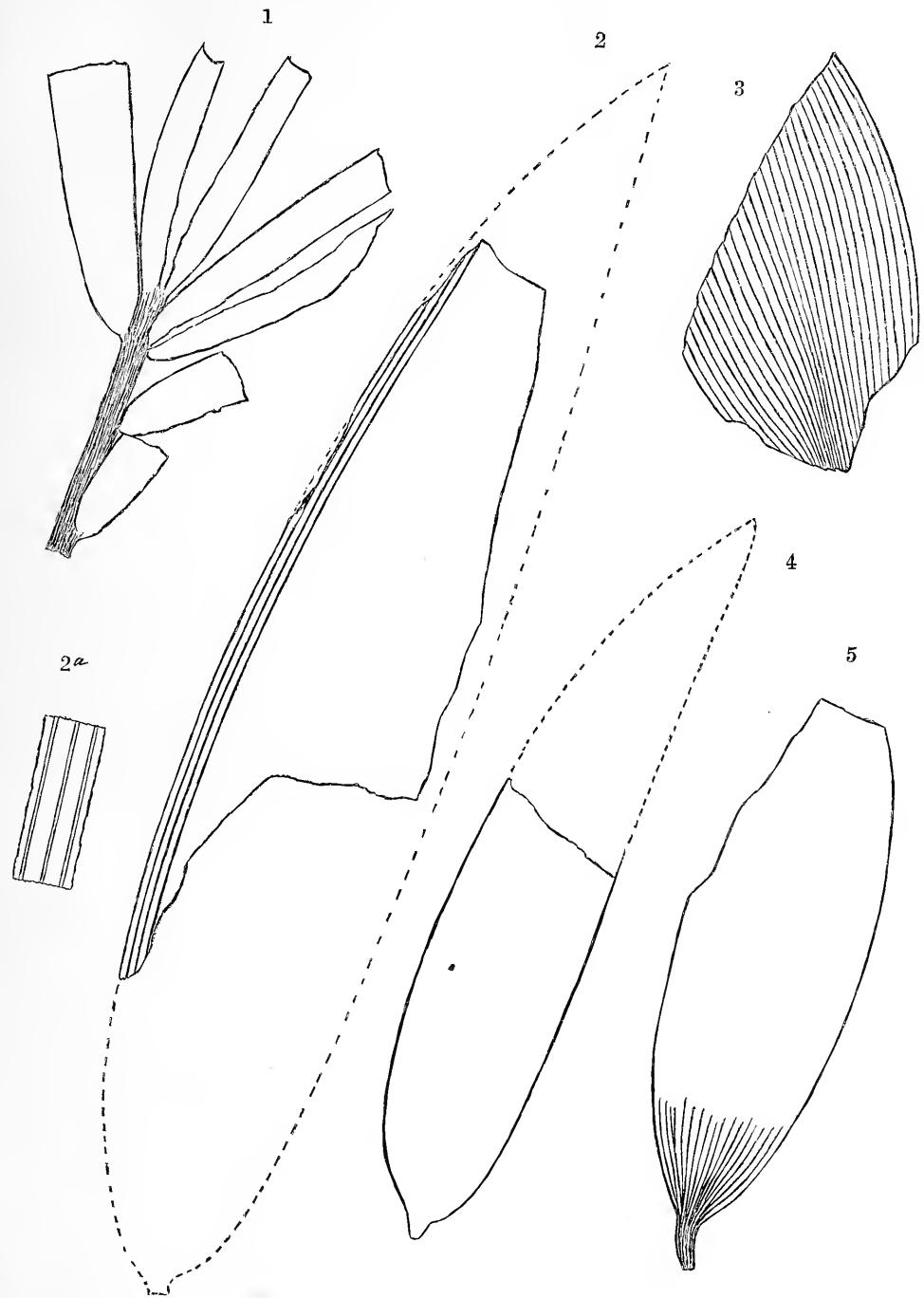


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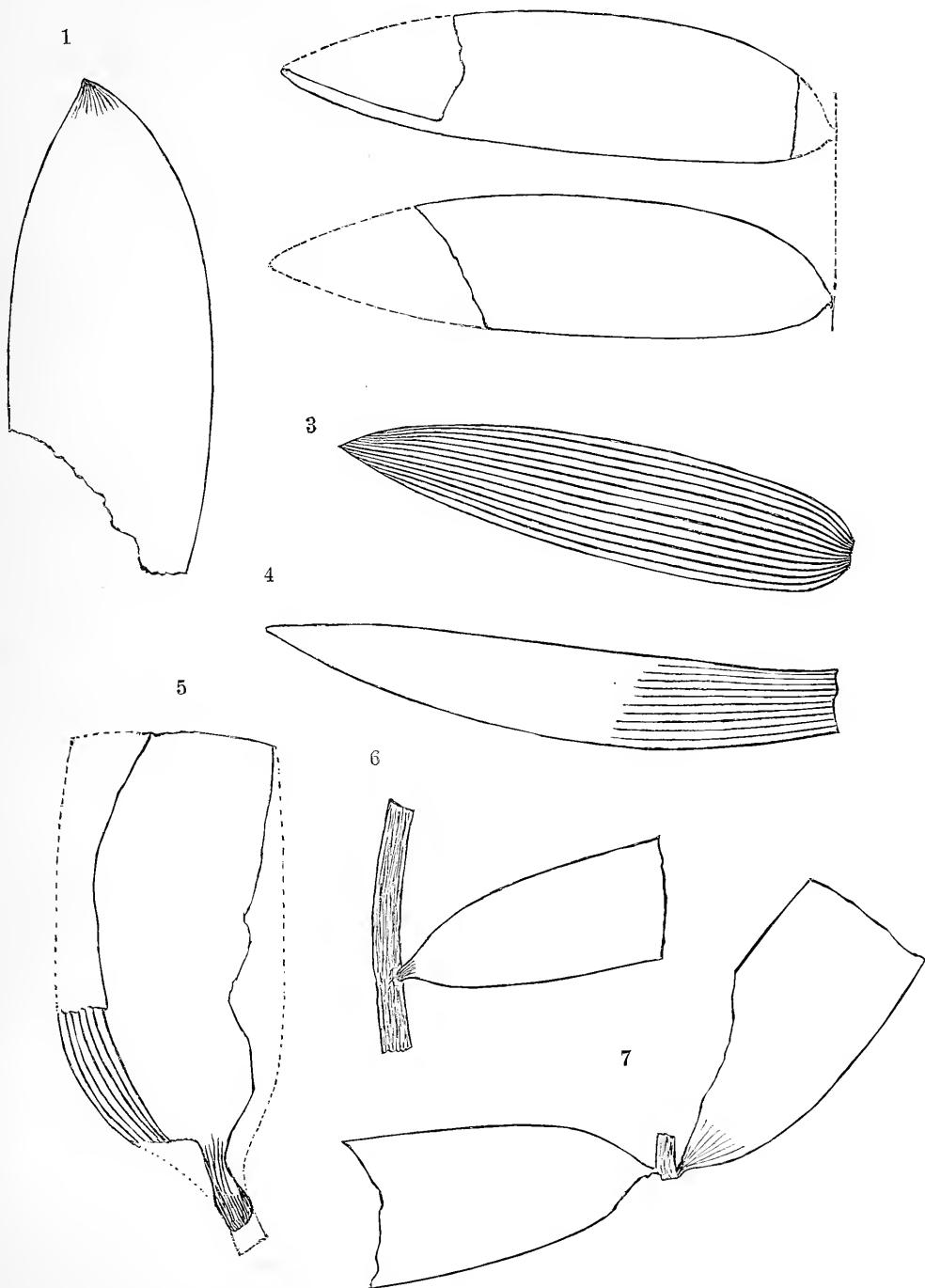




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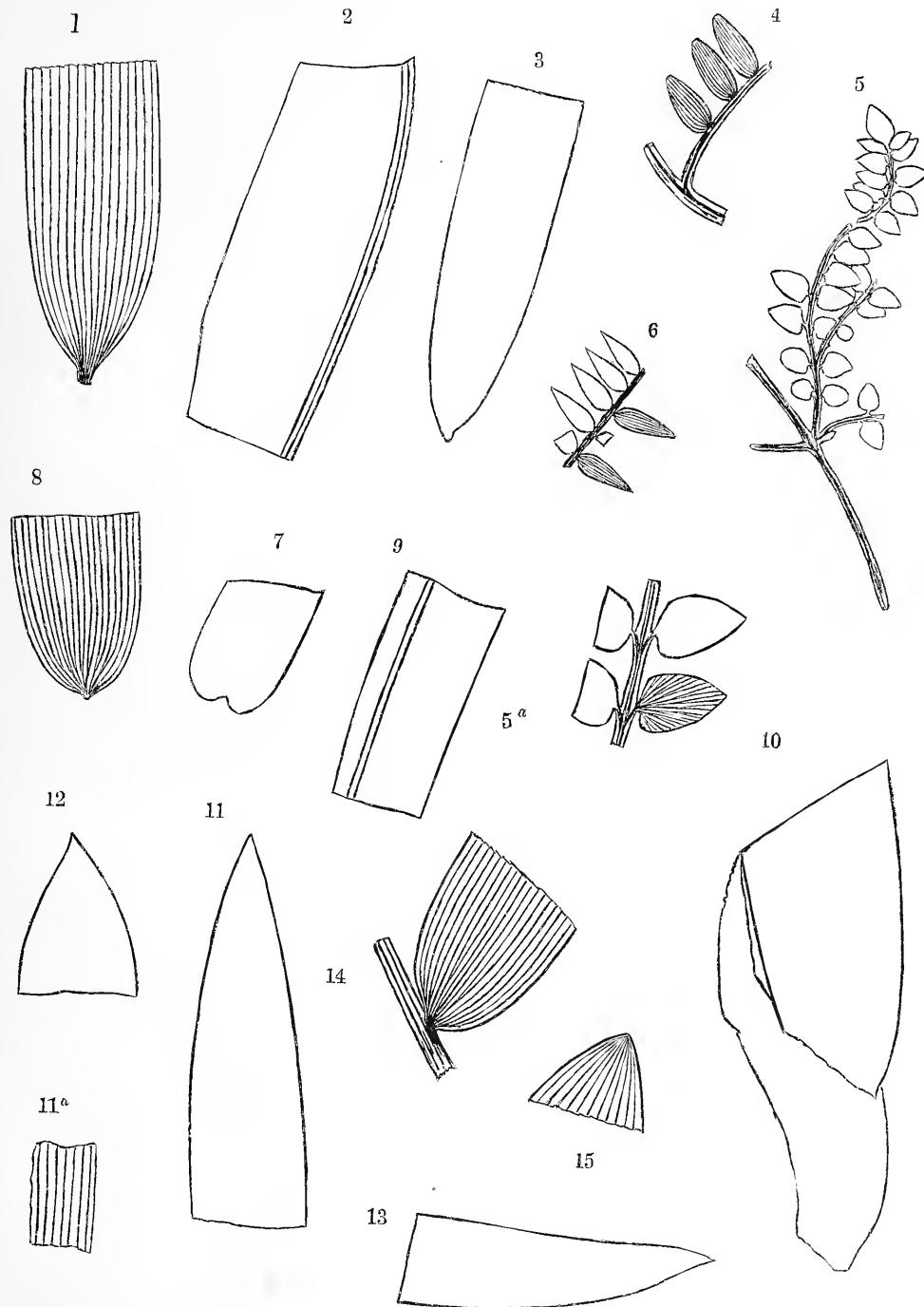




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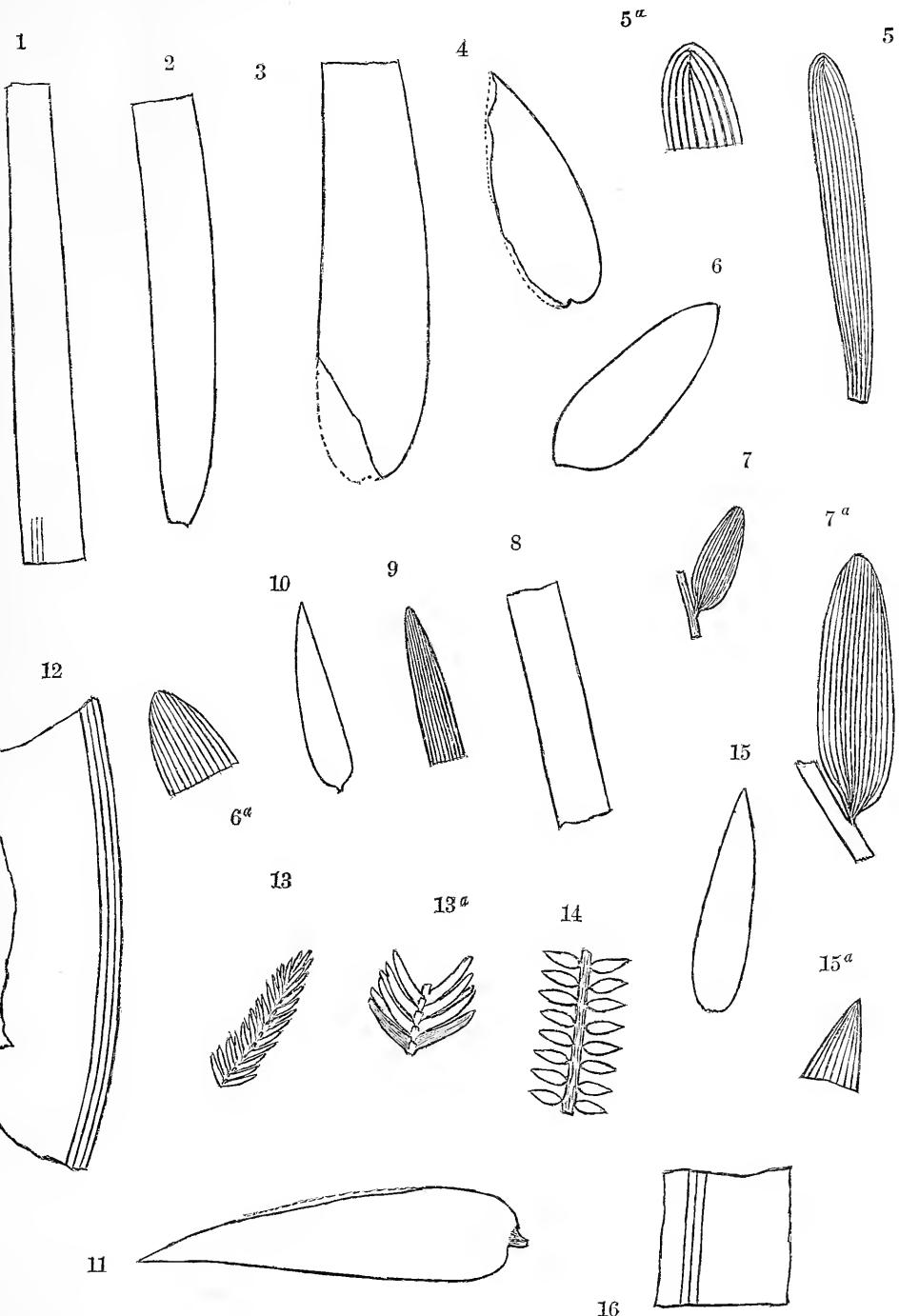




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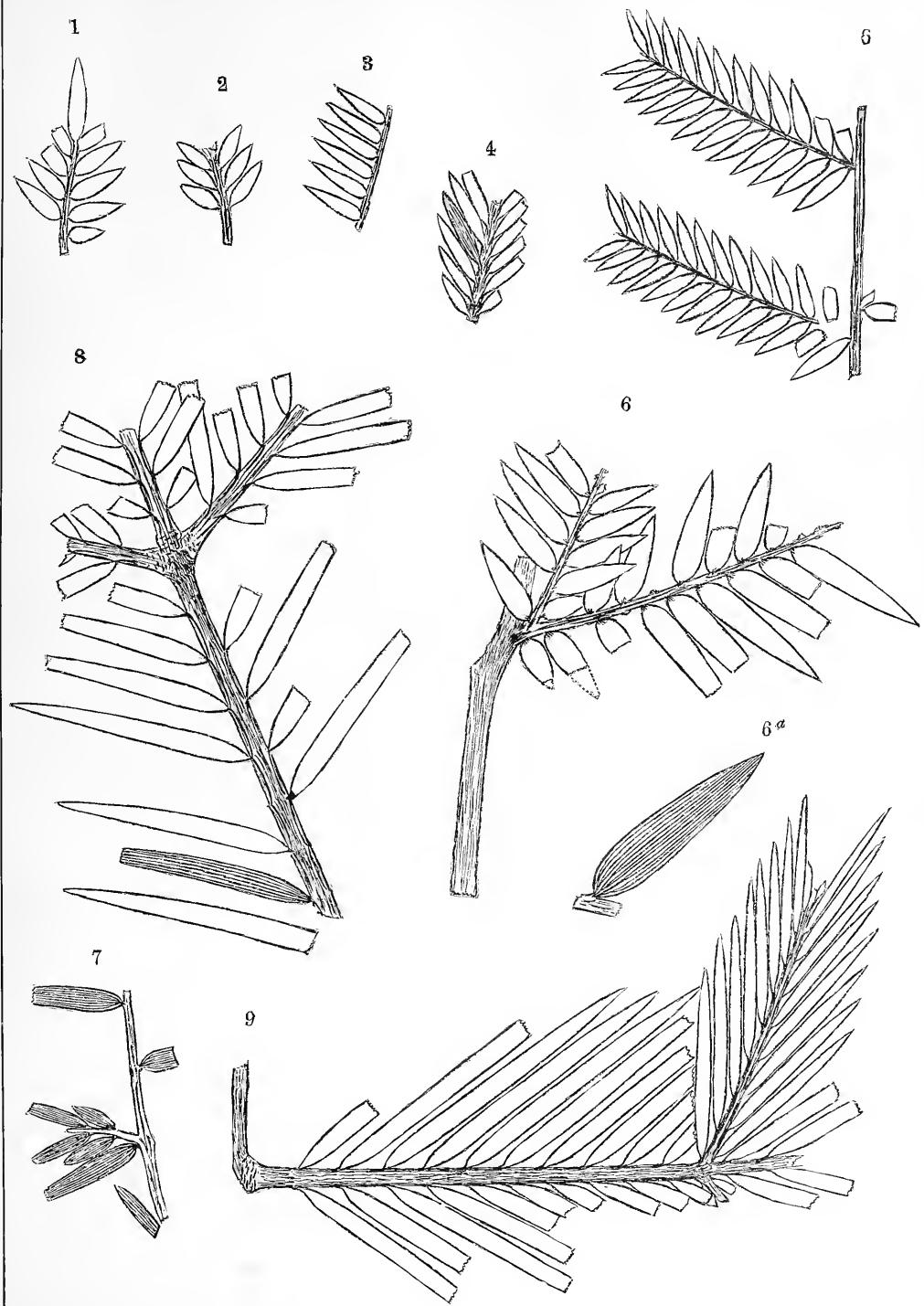


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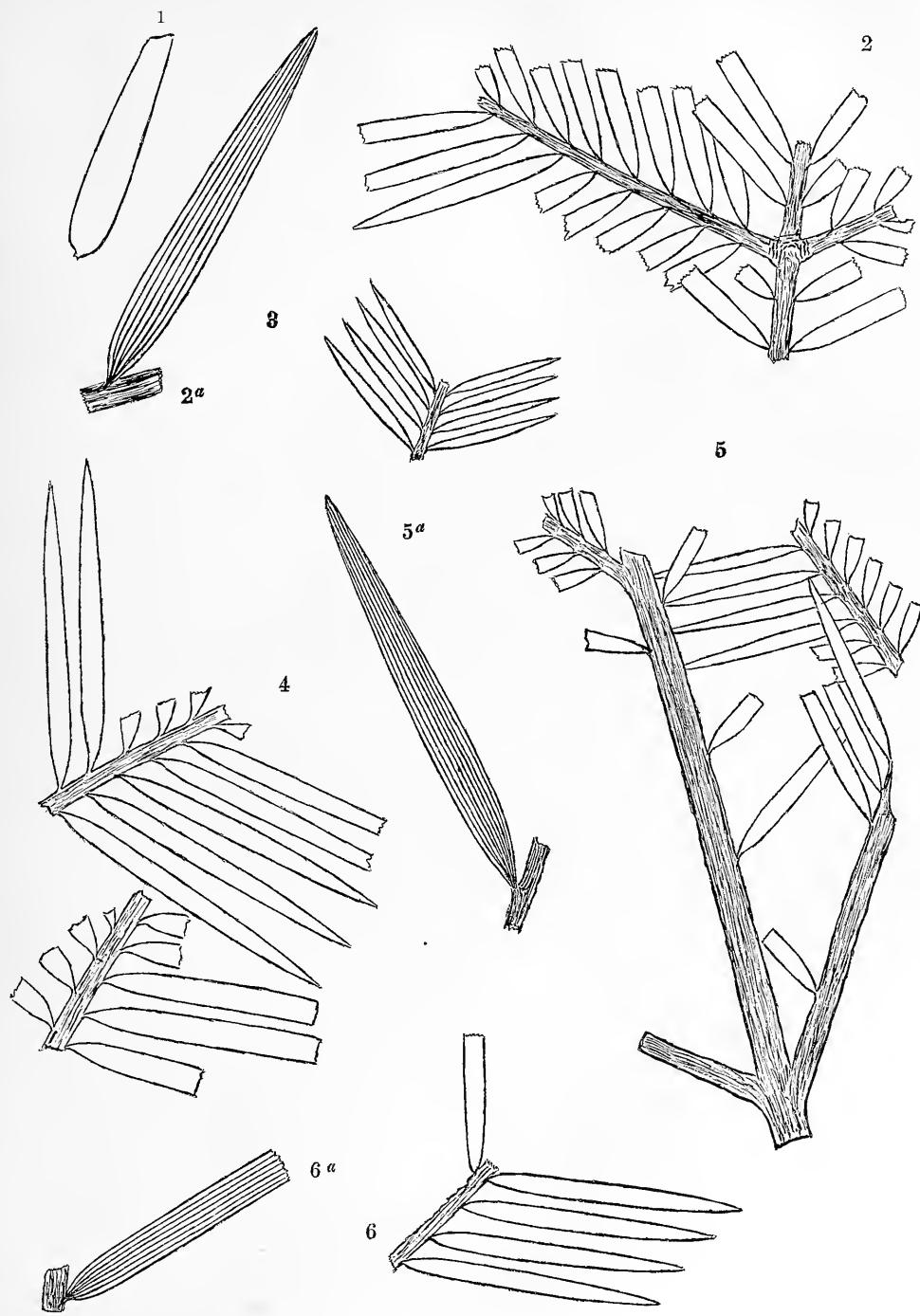


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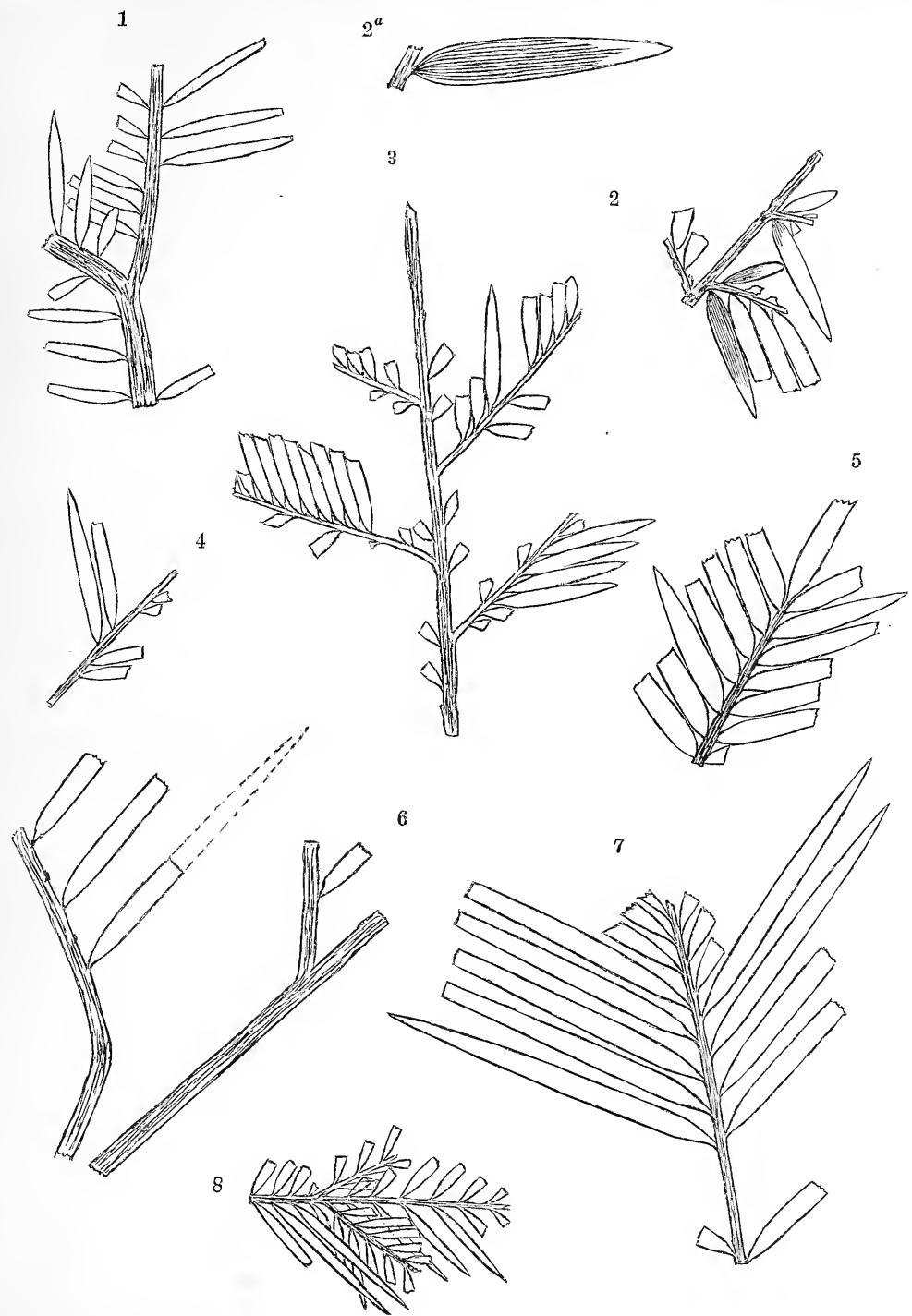


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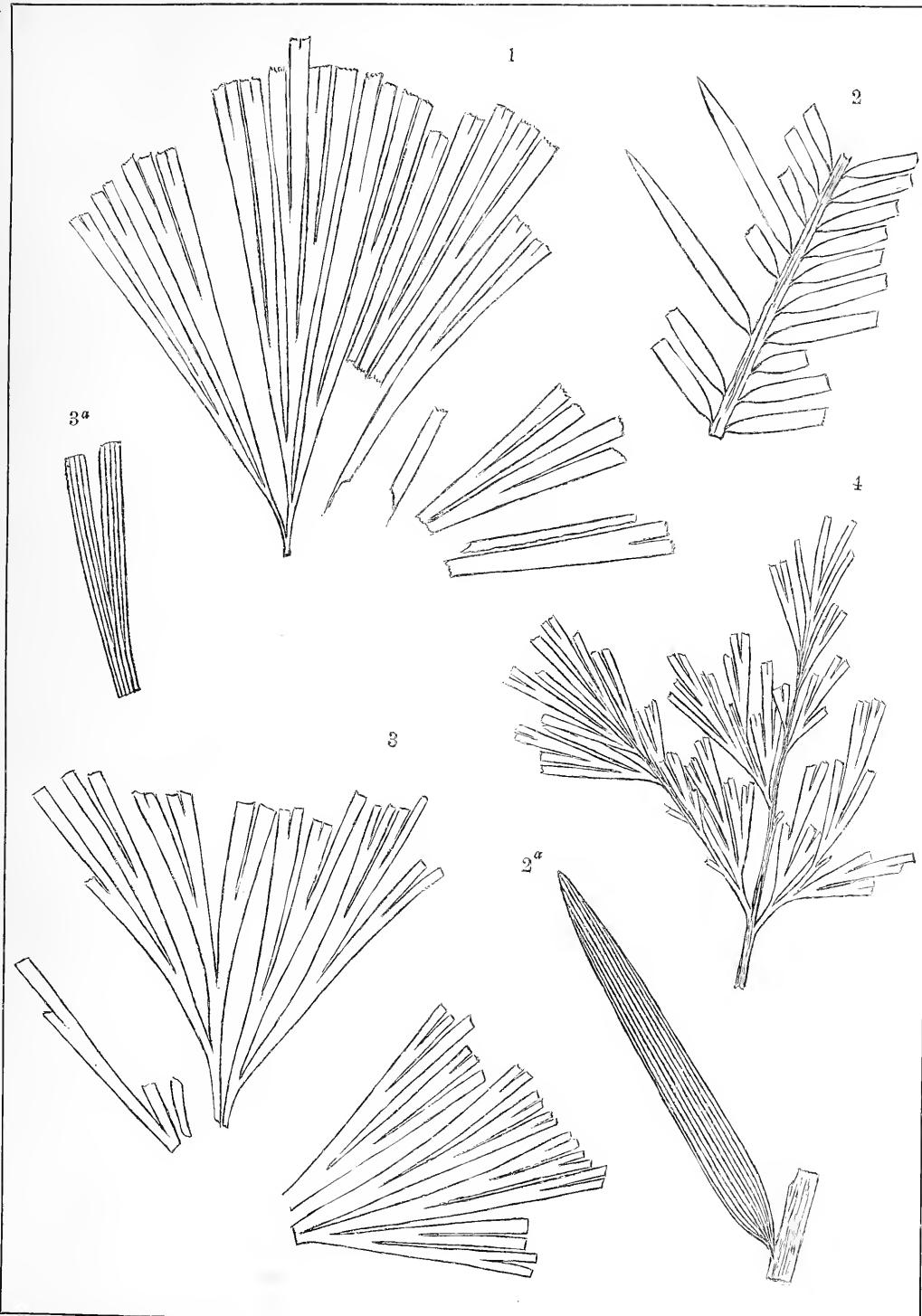


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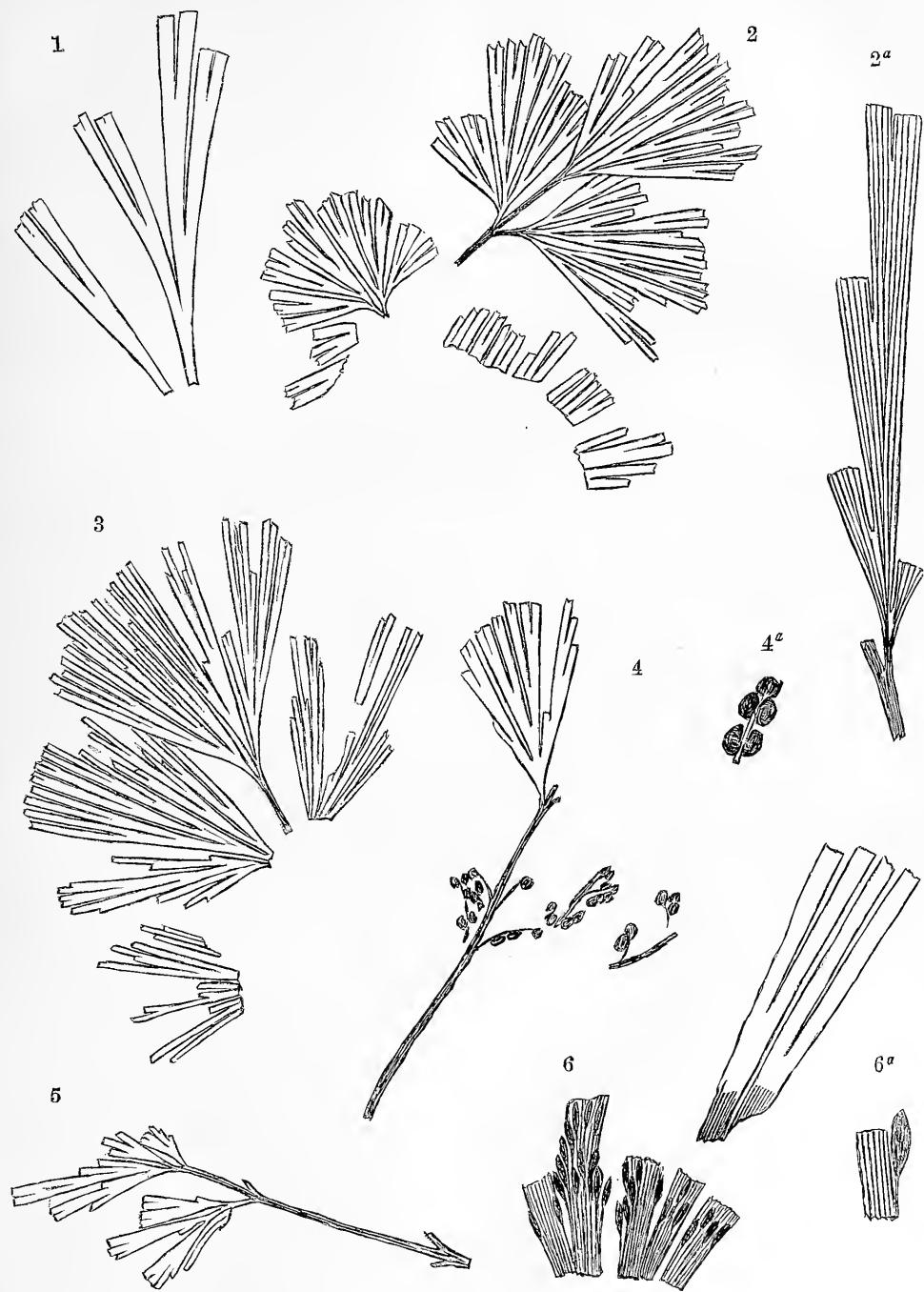


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PLATE XCII.

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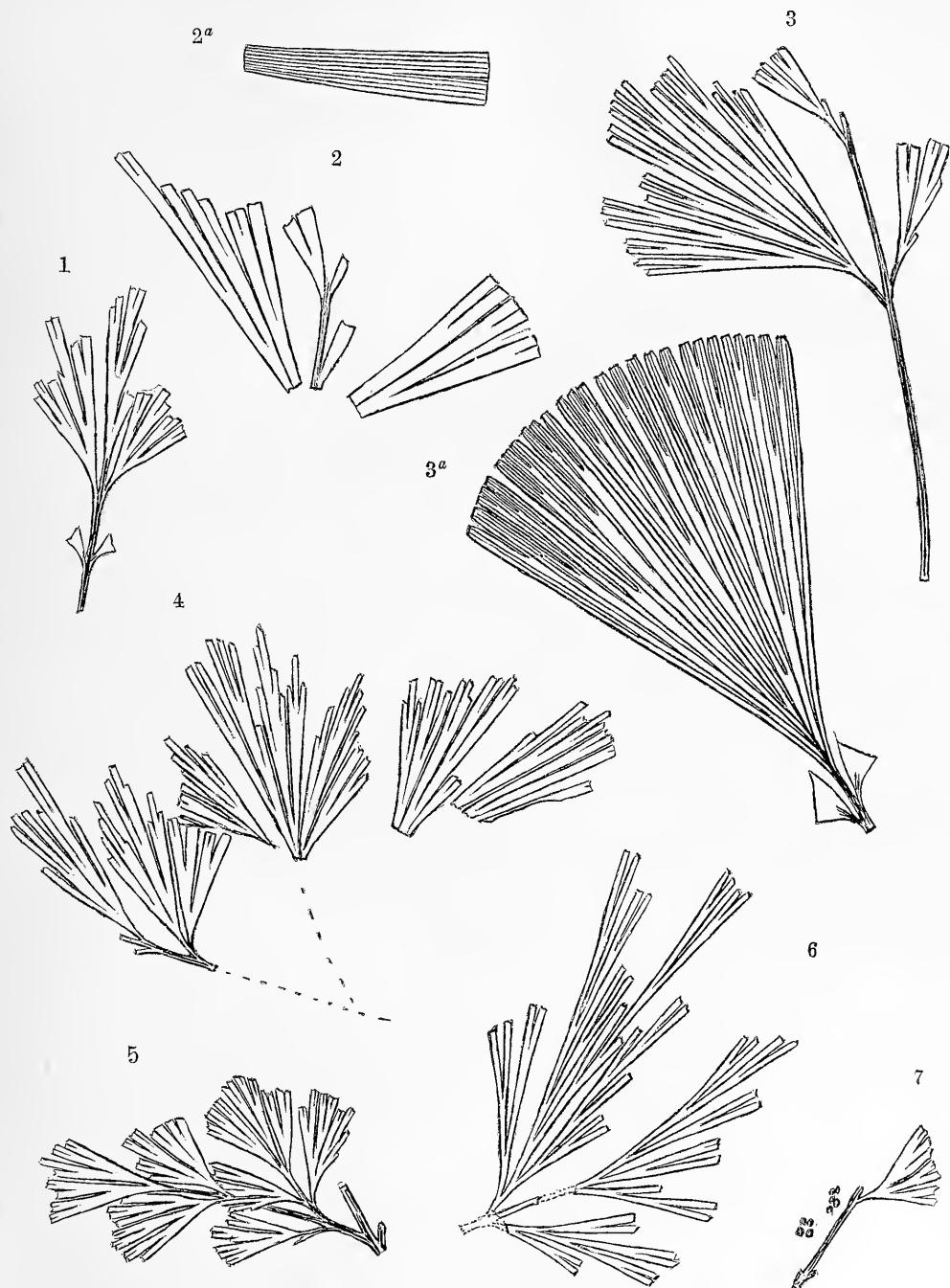




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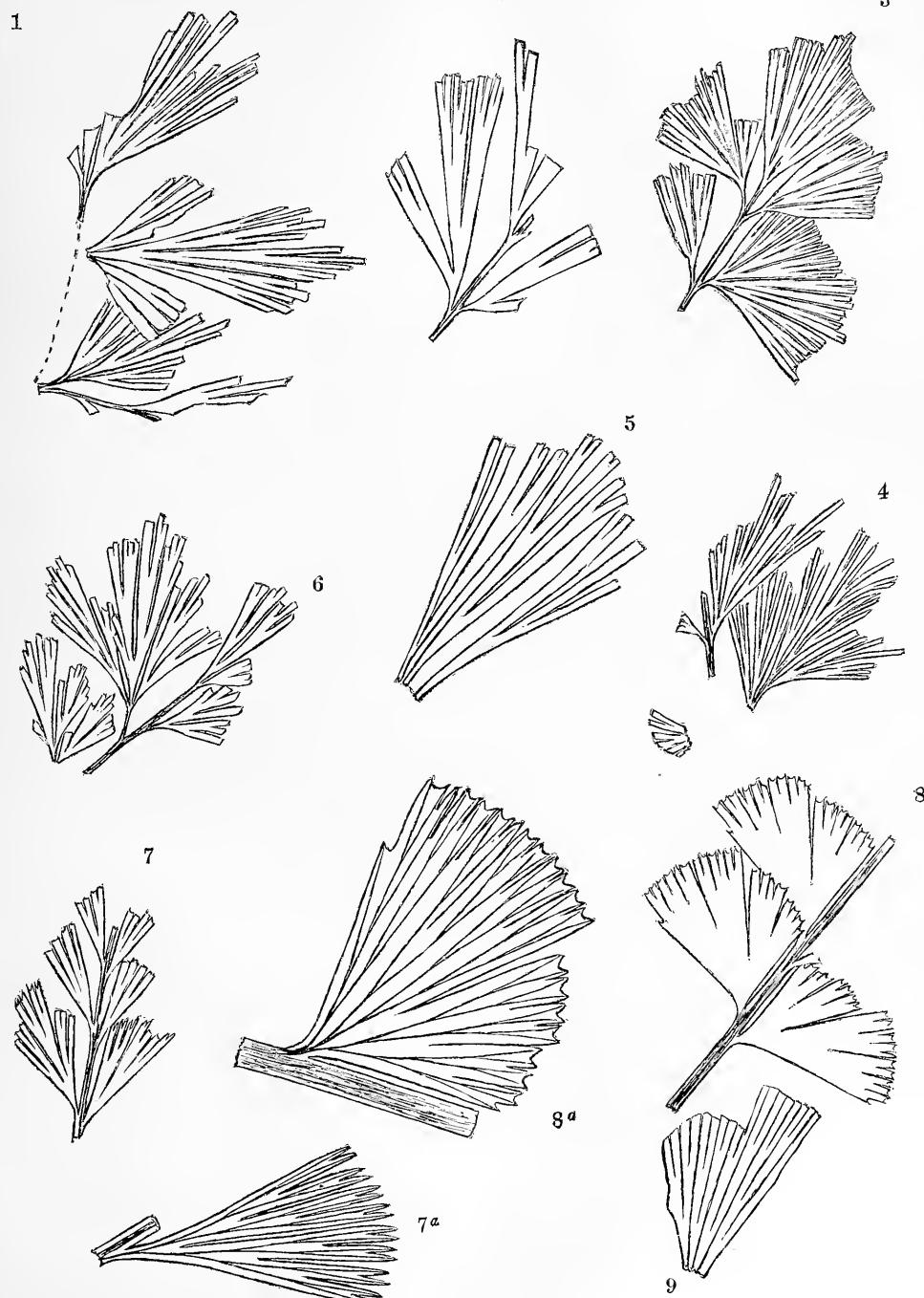


PLATE XCIII.

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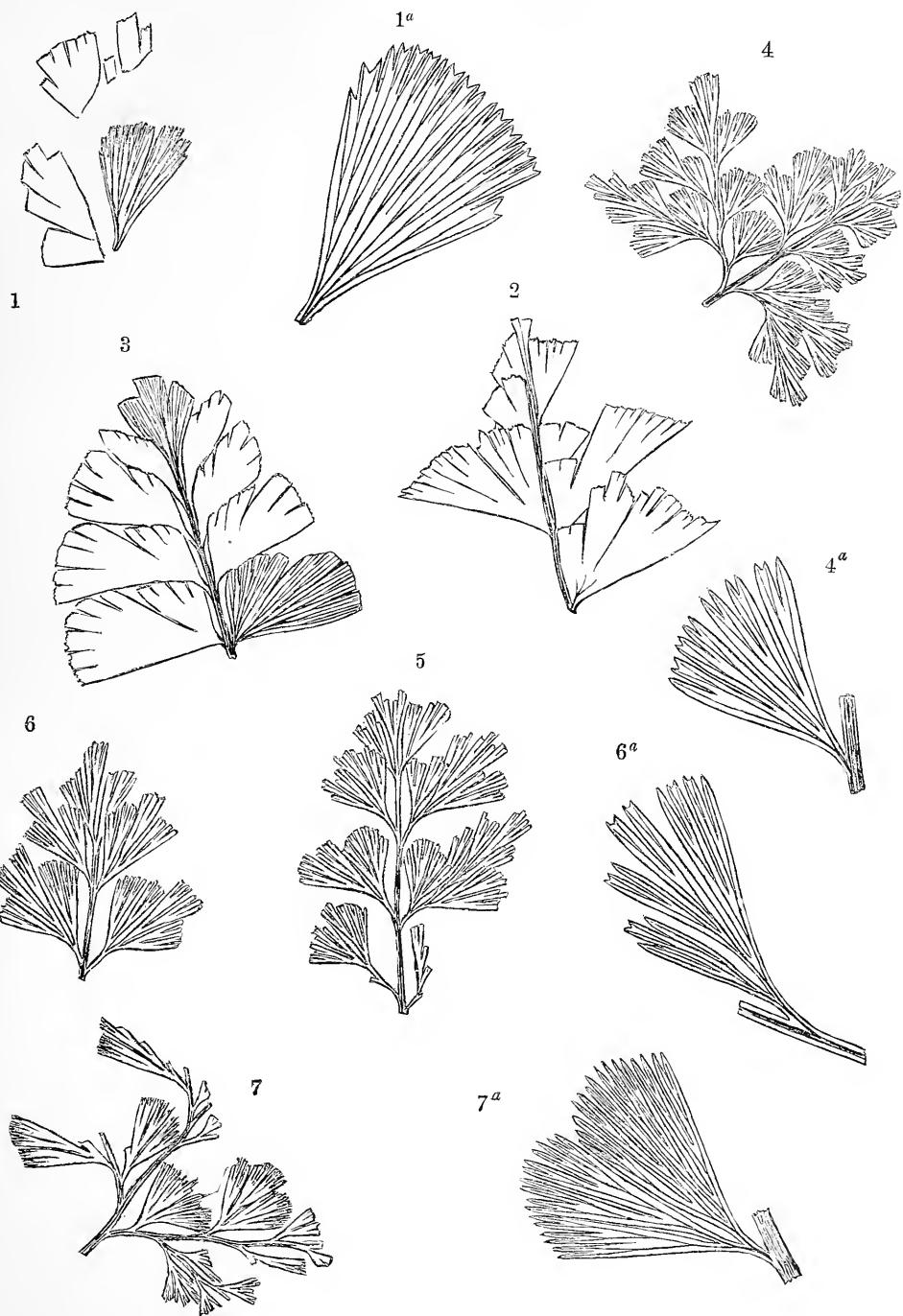




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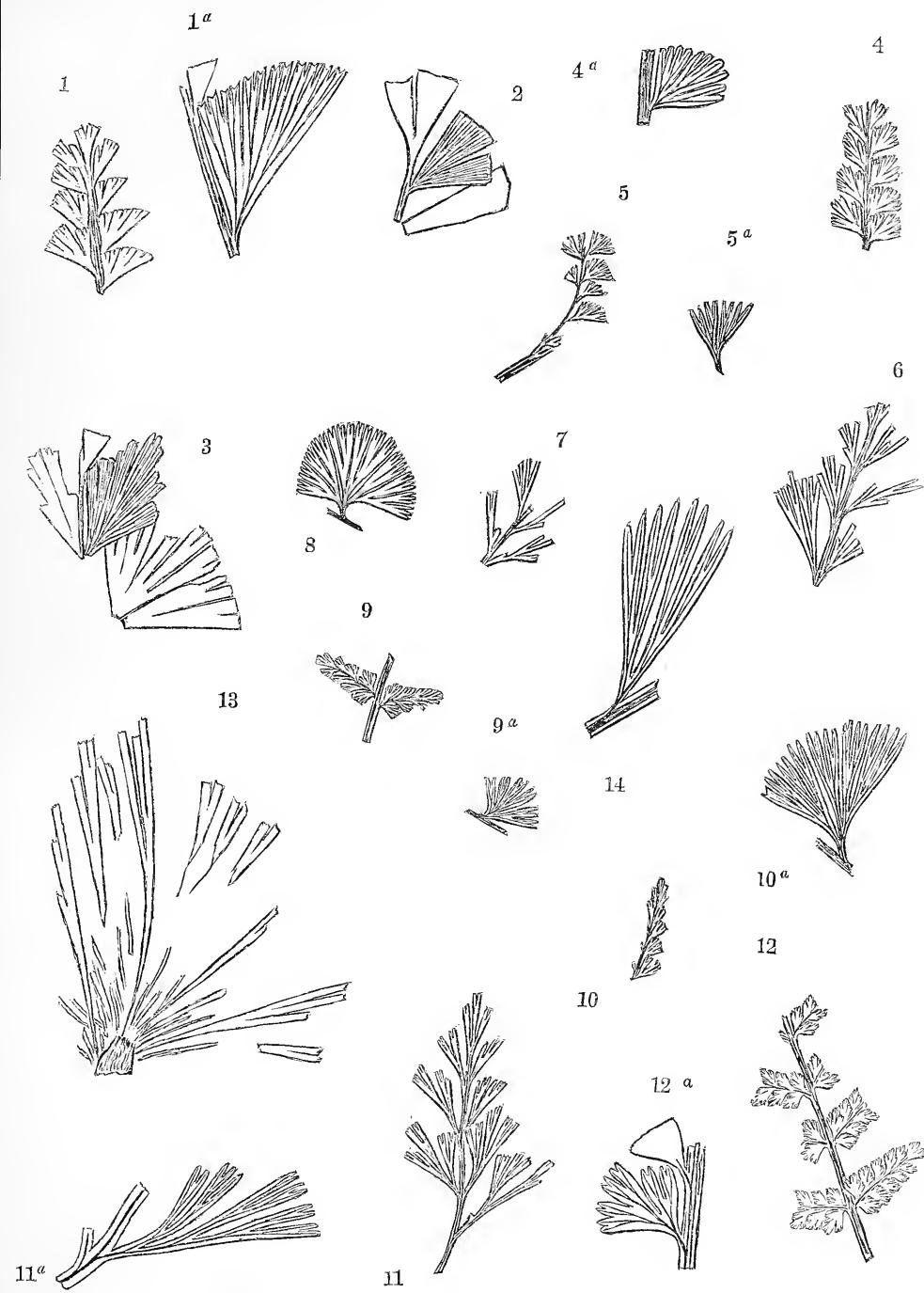


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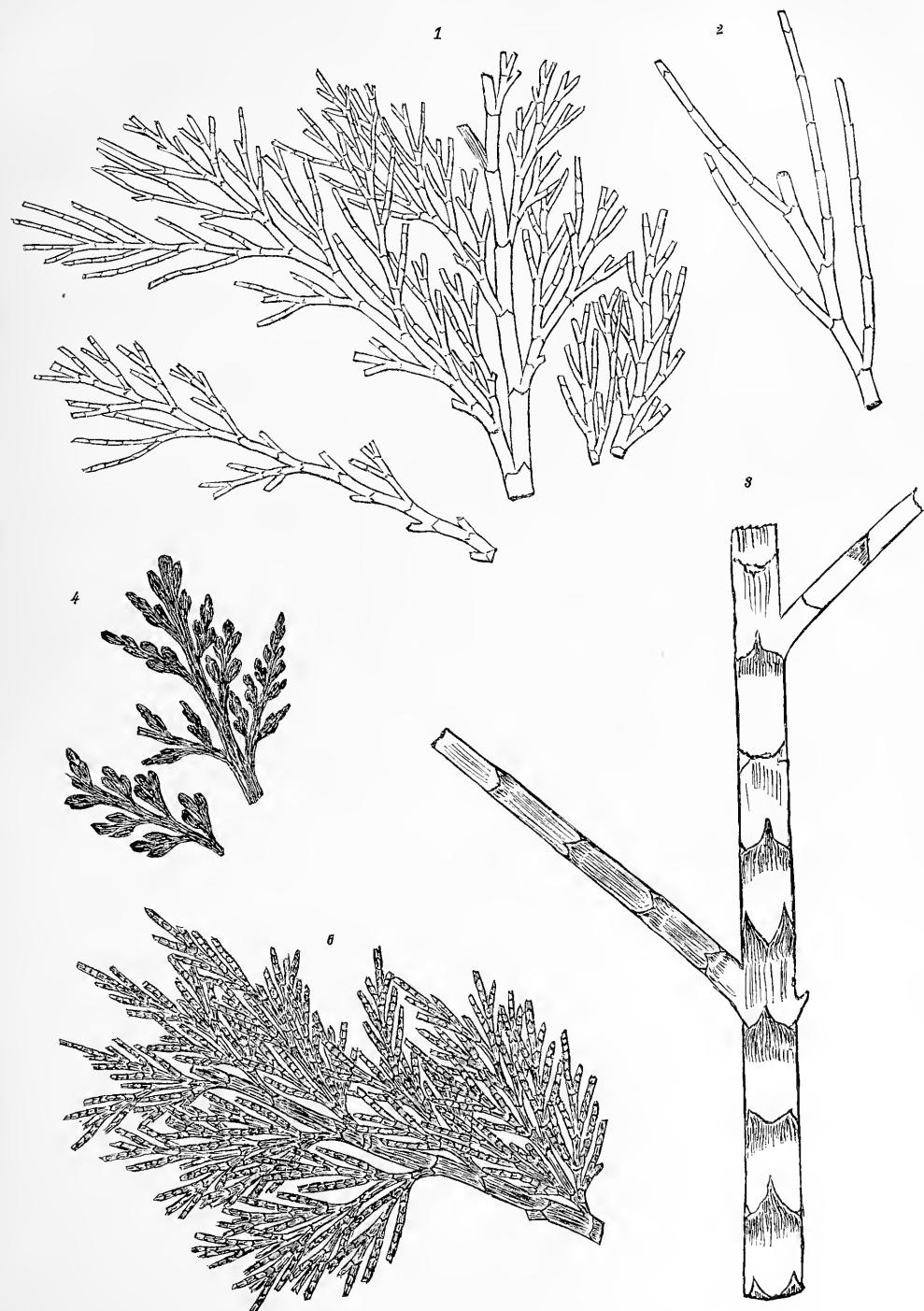


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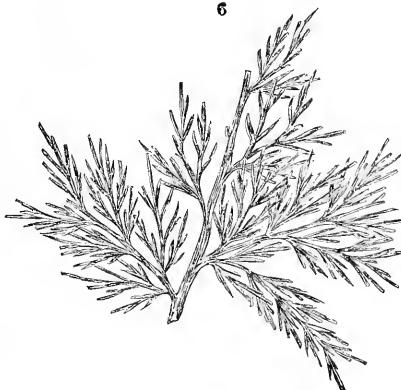
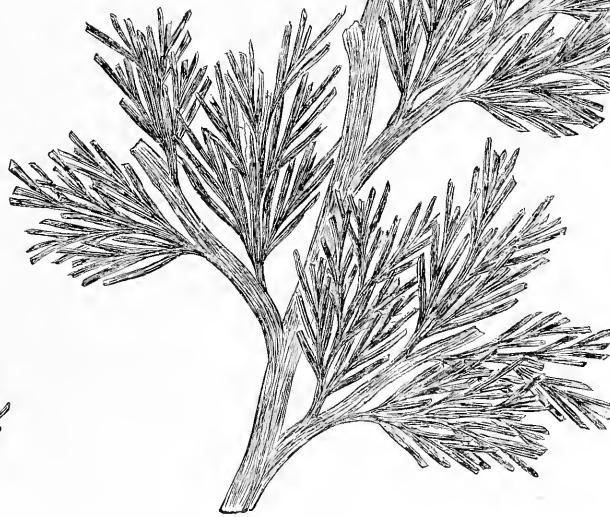
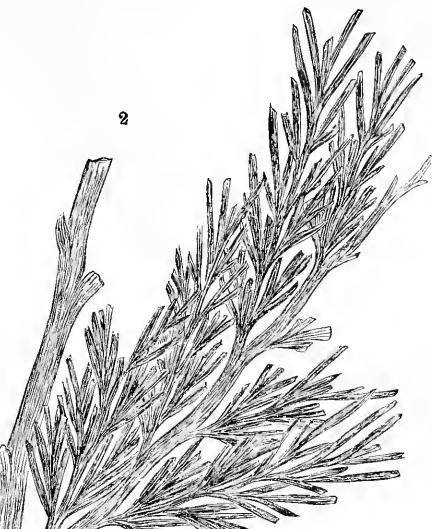
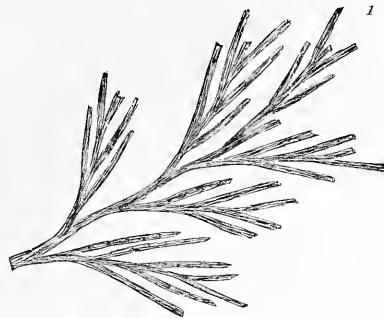


PLATE XCIX.

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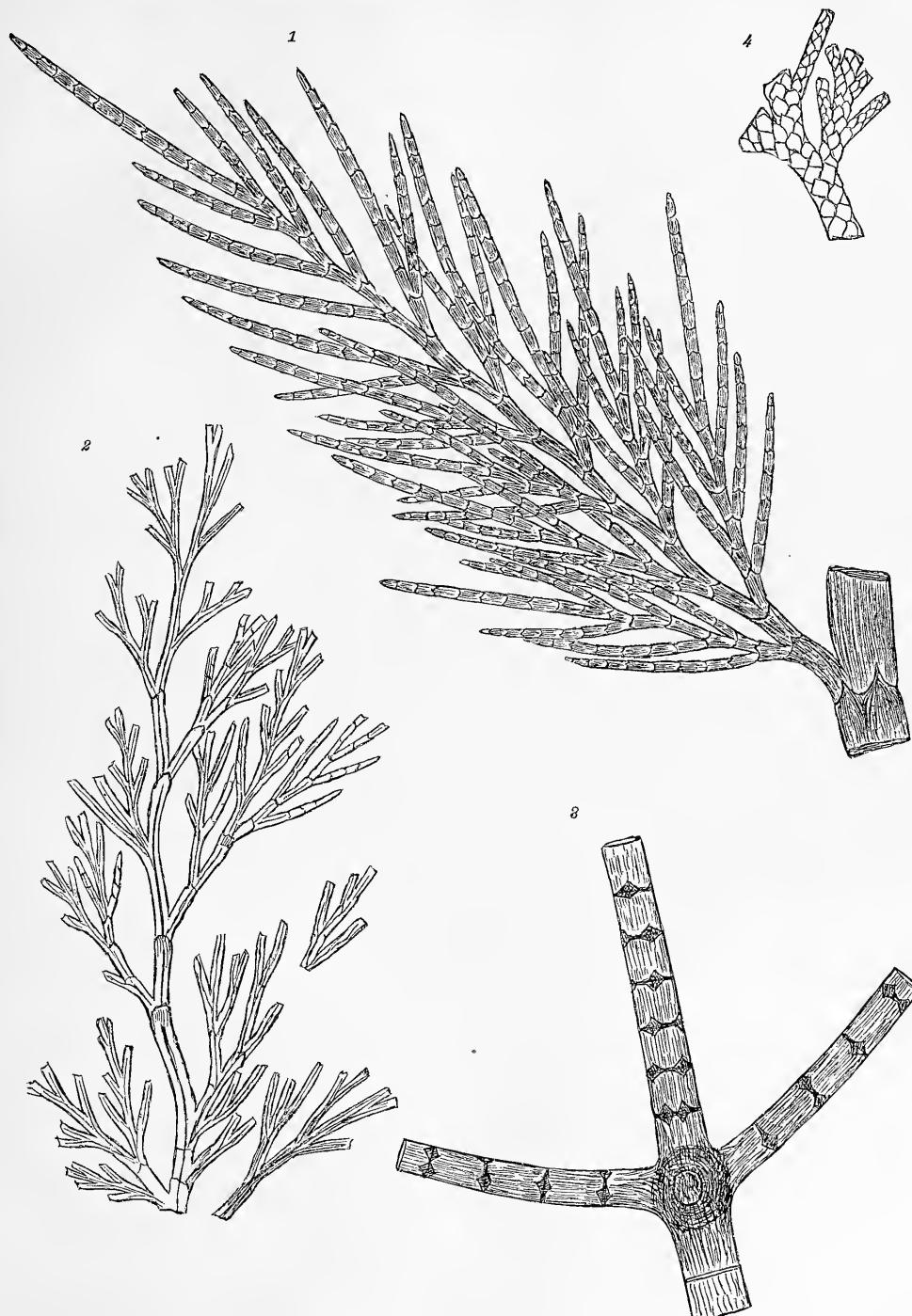


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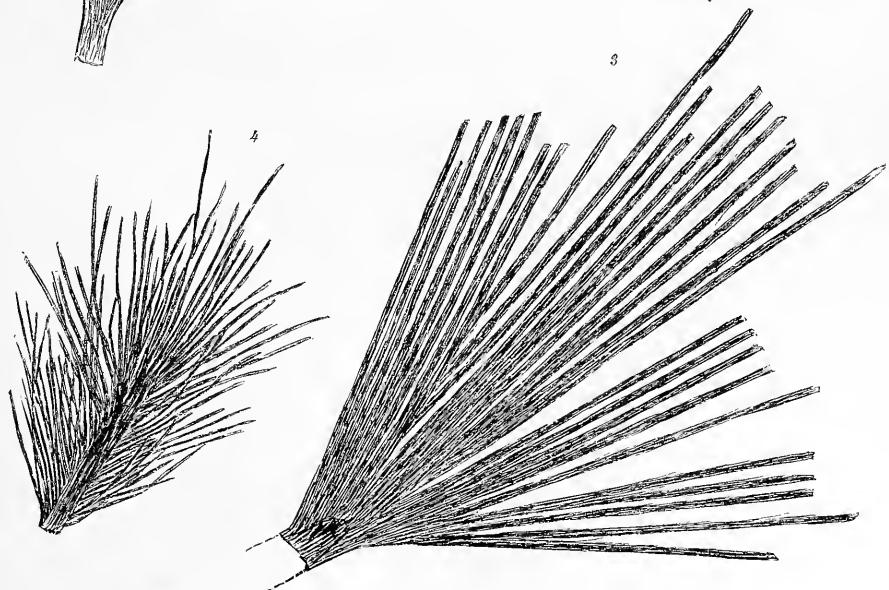
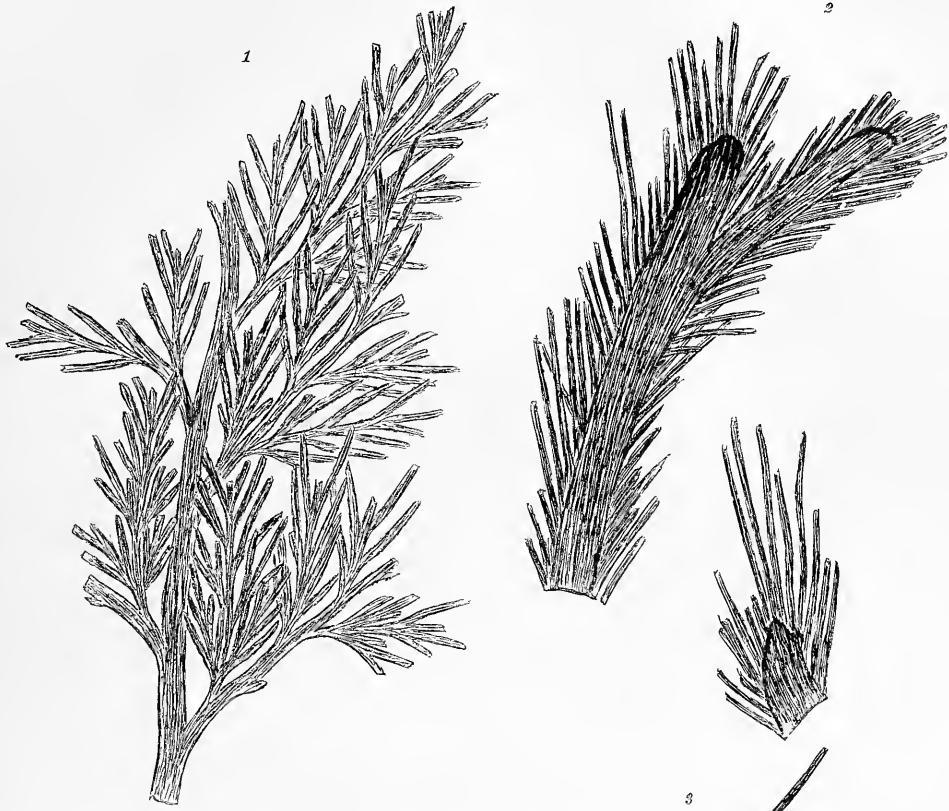


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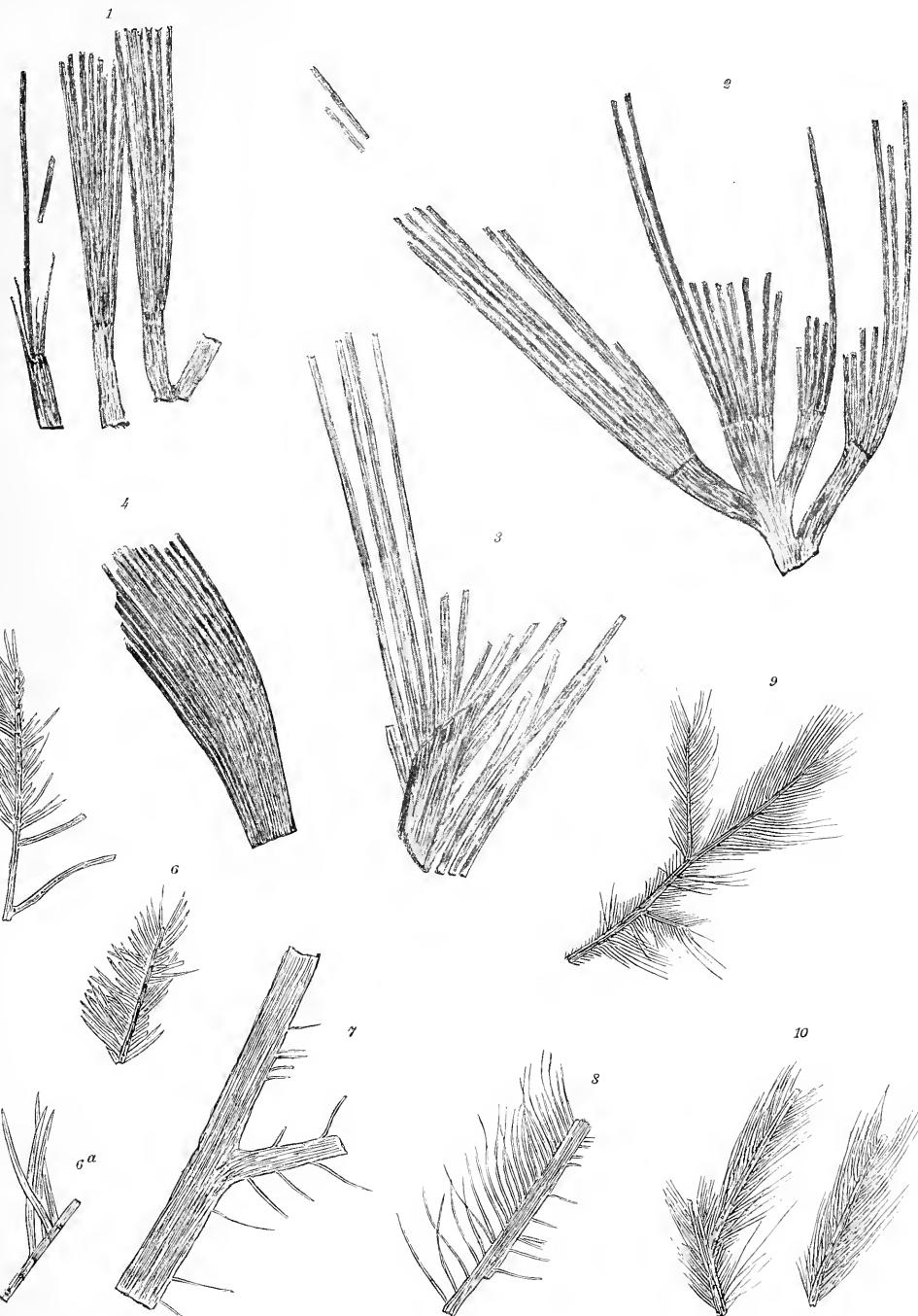




PLATE CIII.

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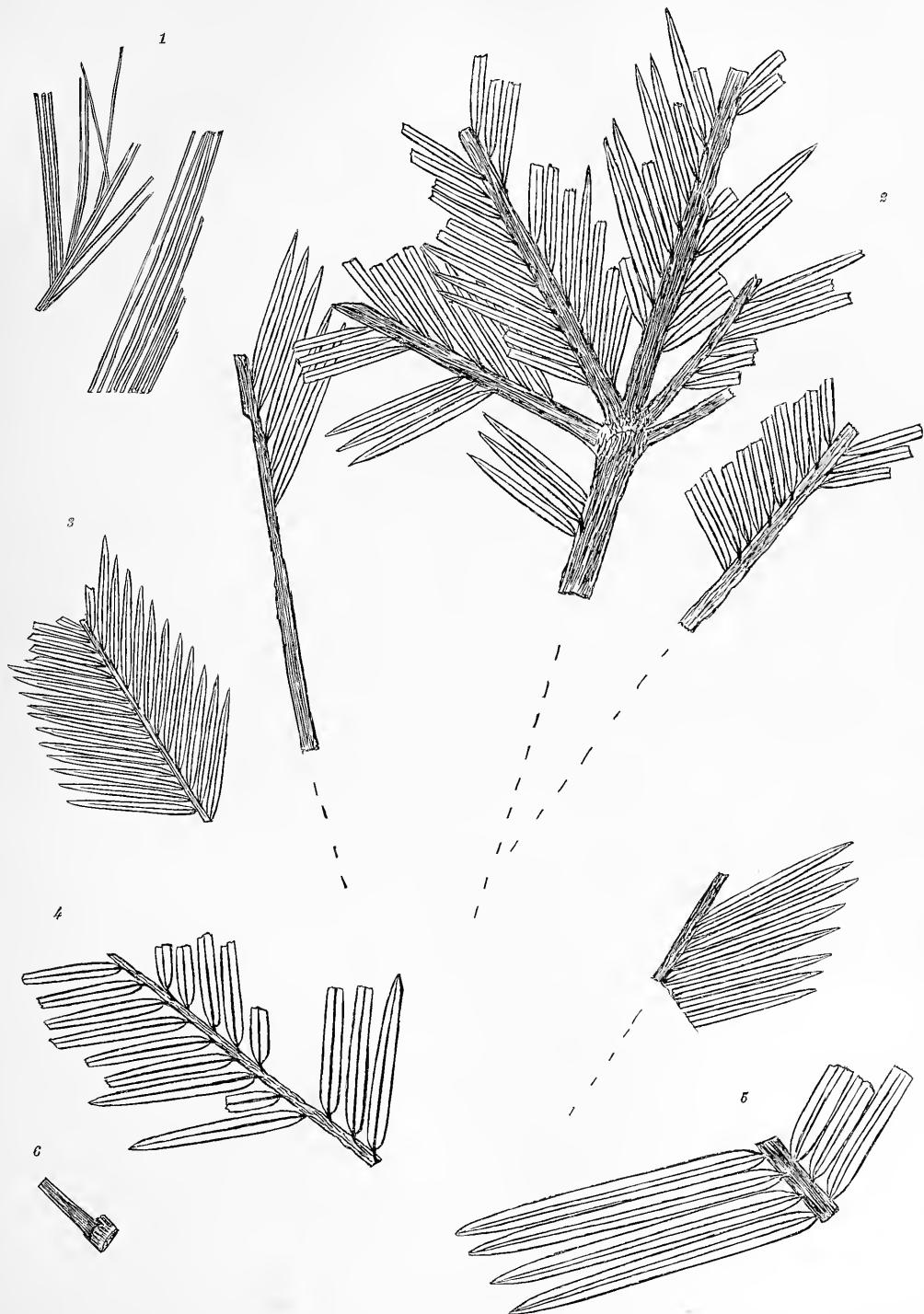
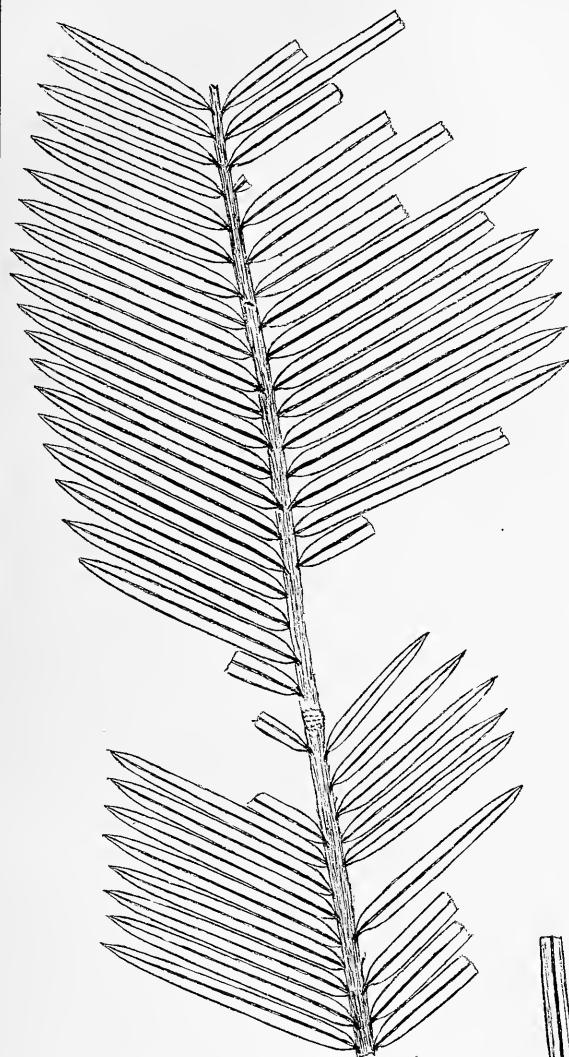


PLATE CV.

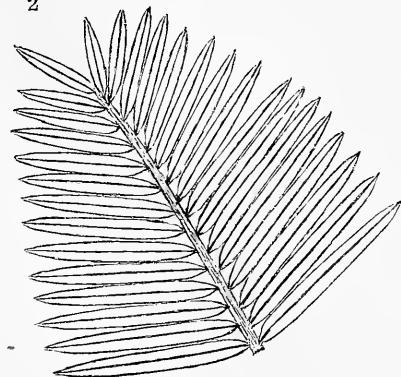
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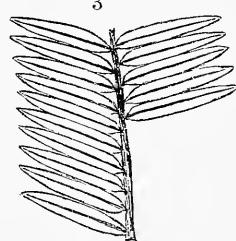
1



2

1^b

3



4

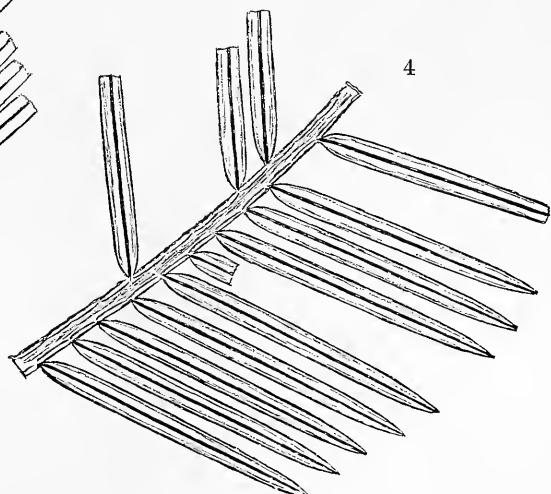
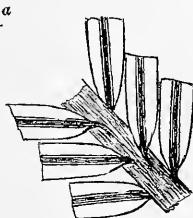
1^a

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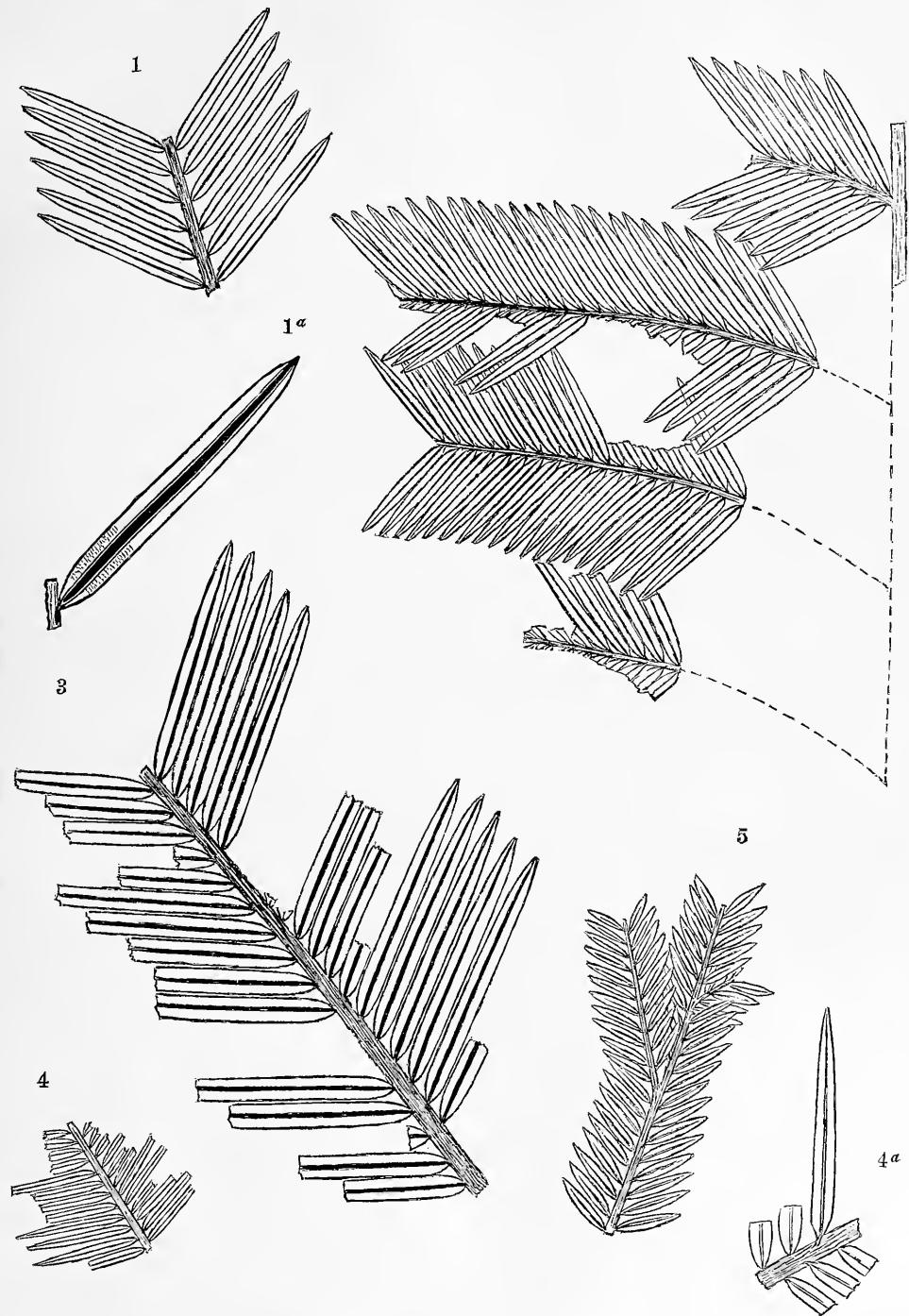


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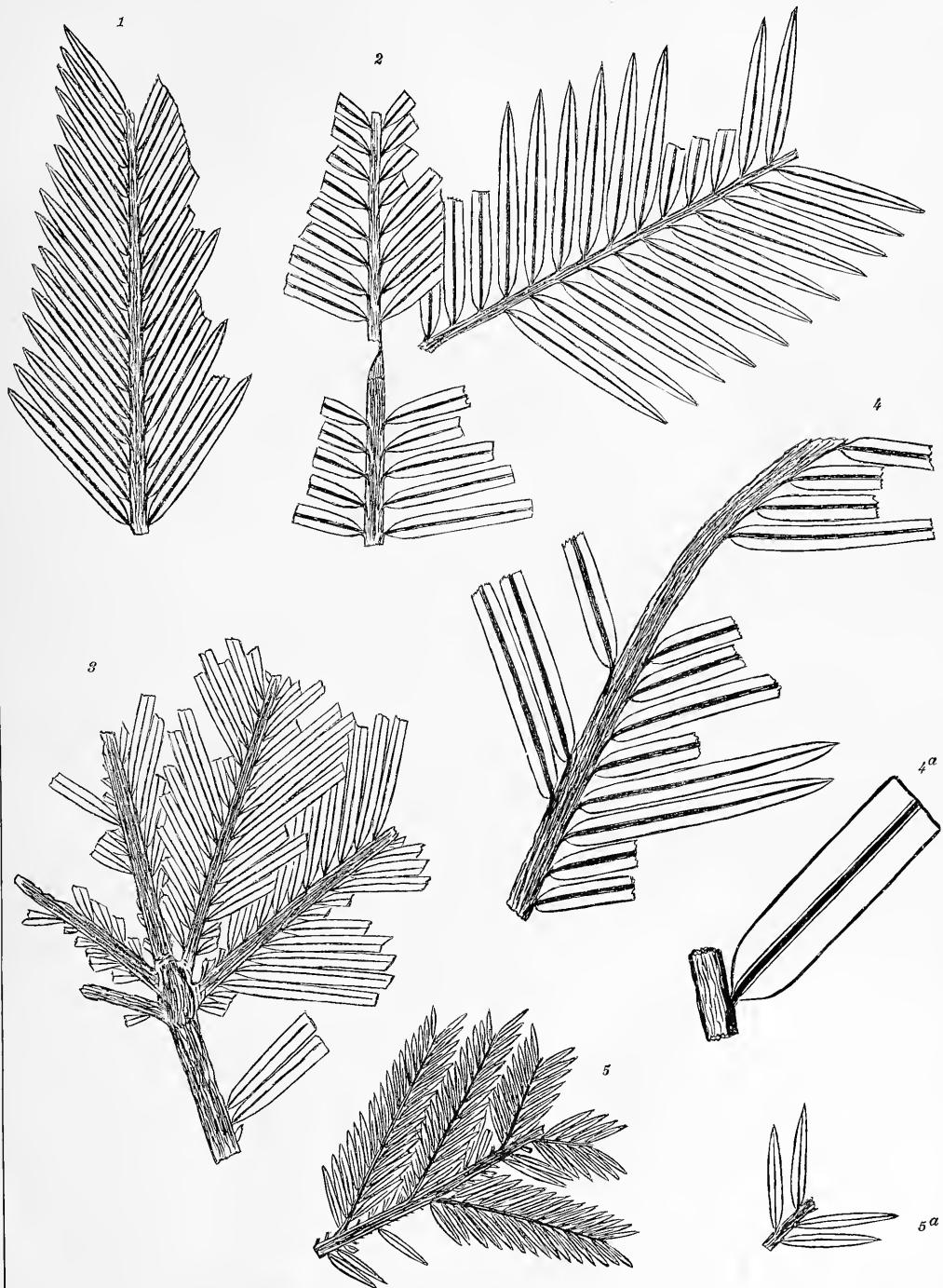


PLATE CVIII.

PLATE CVIII.

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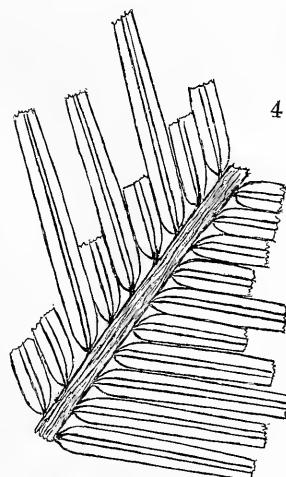
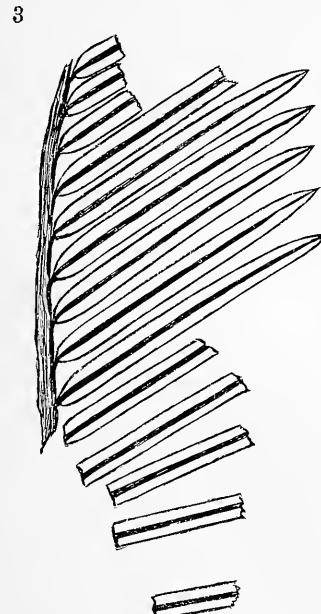
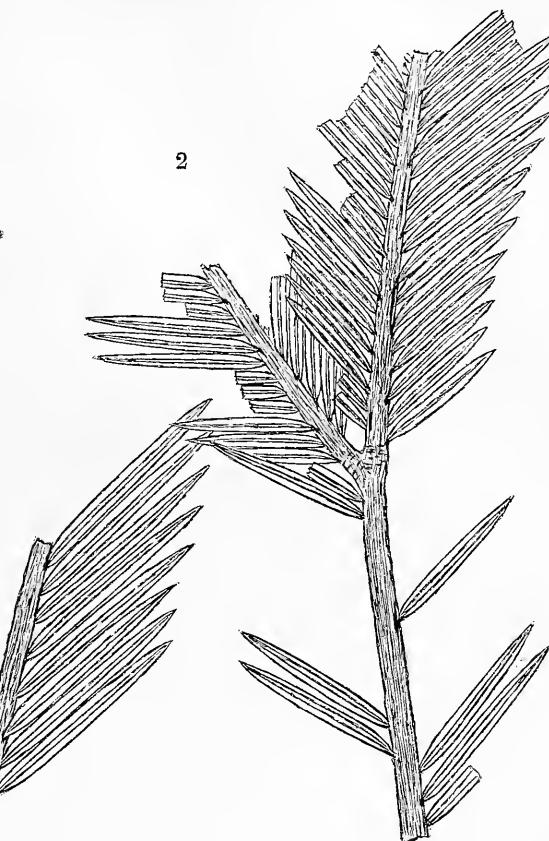
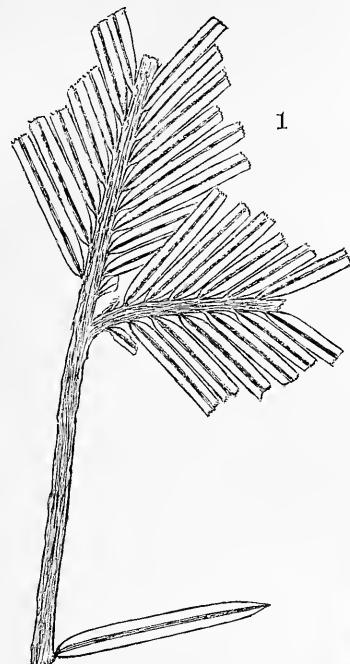


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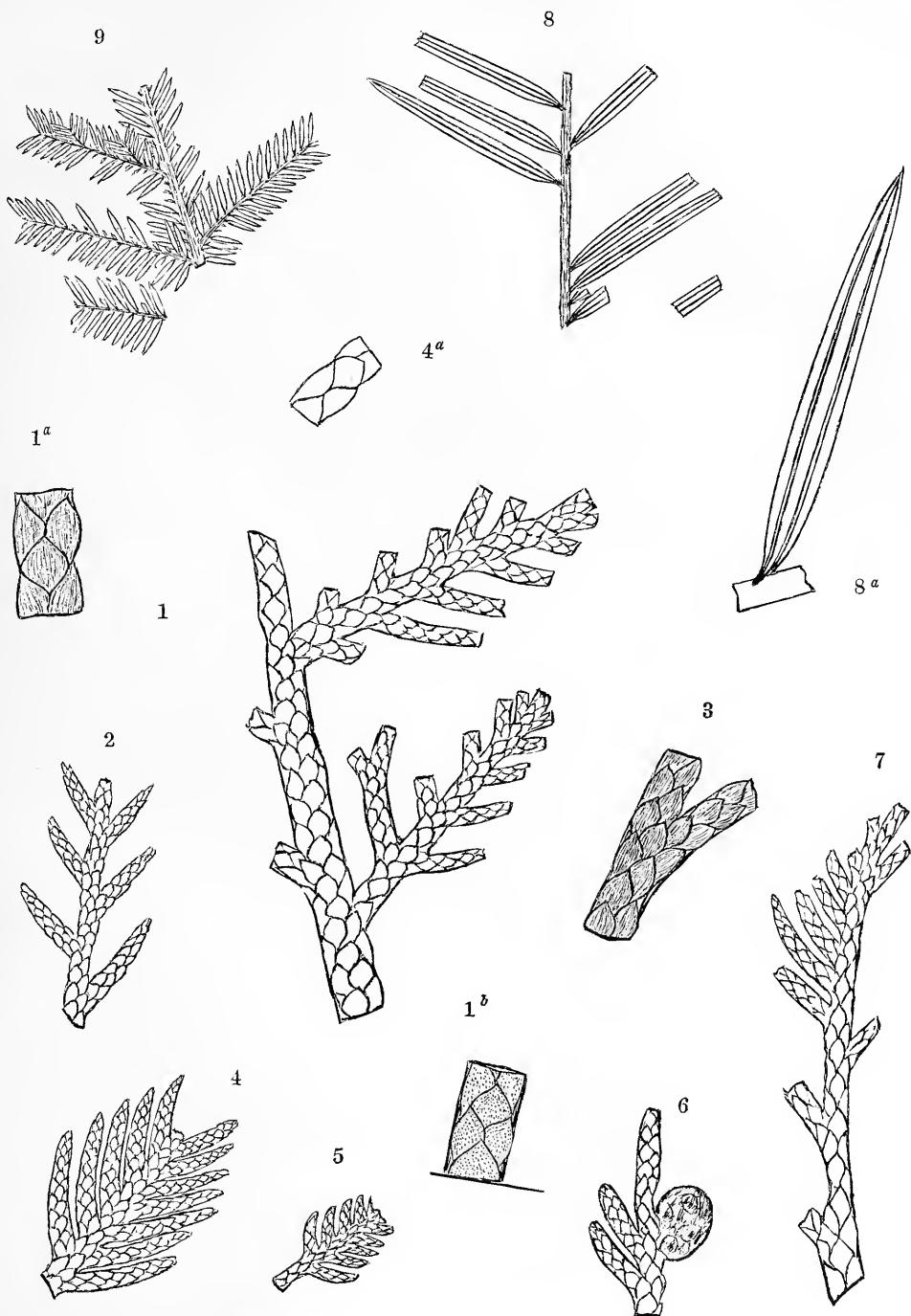


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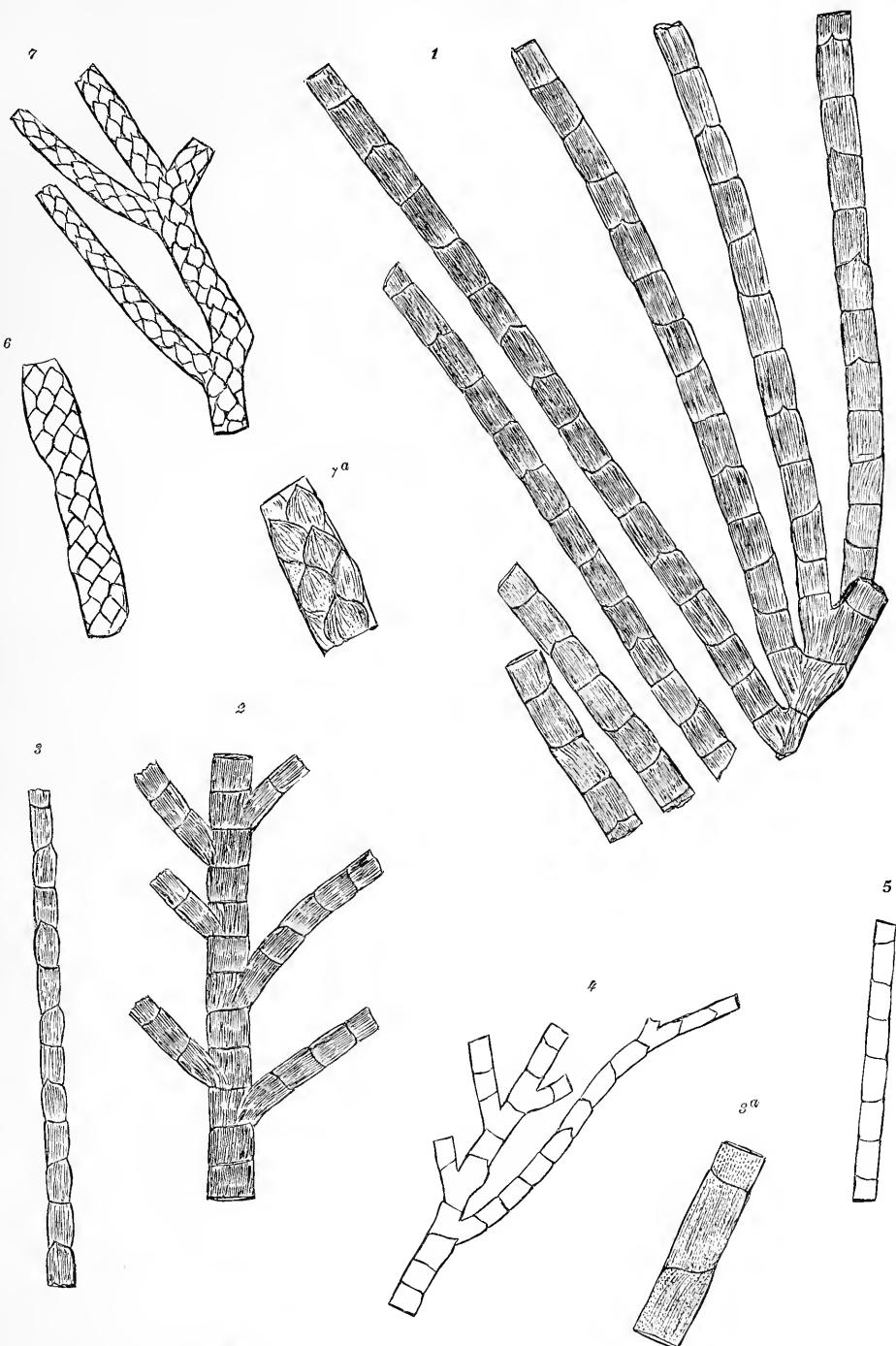


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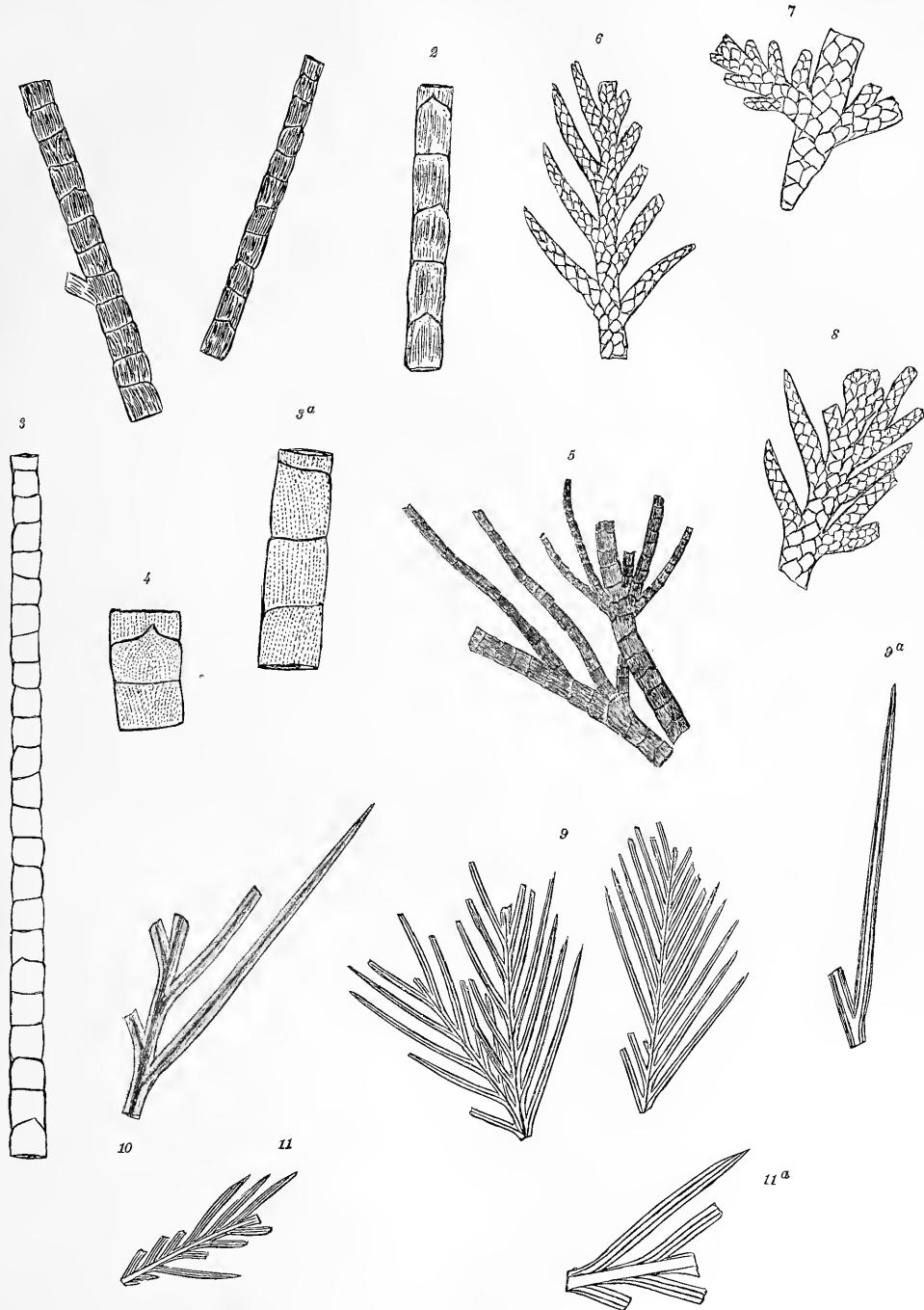


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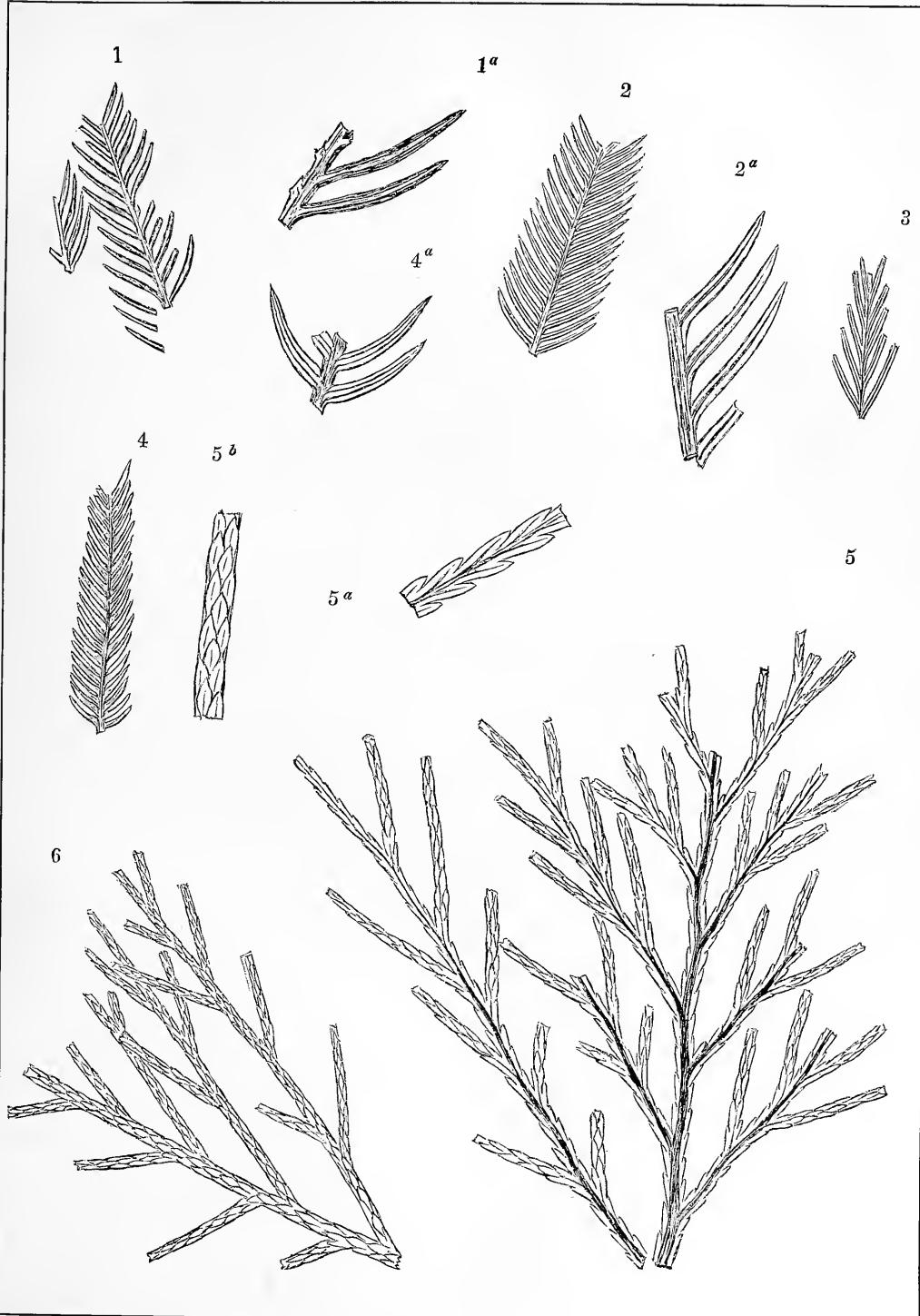


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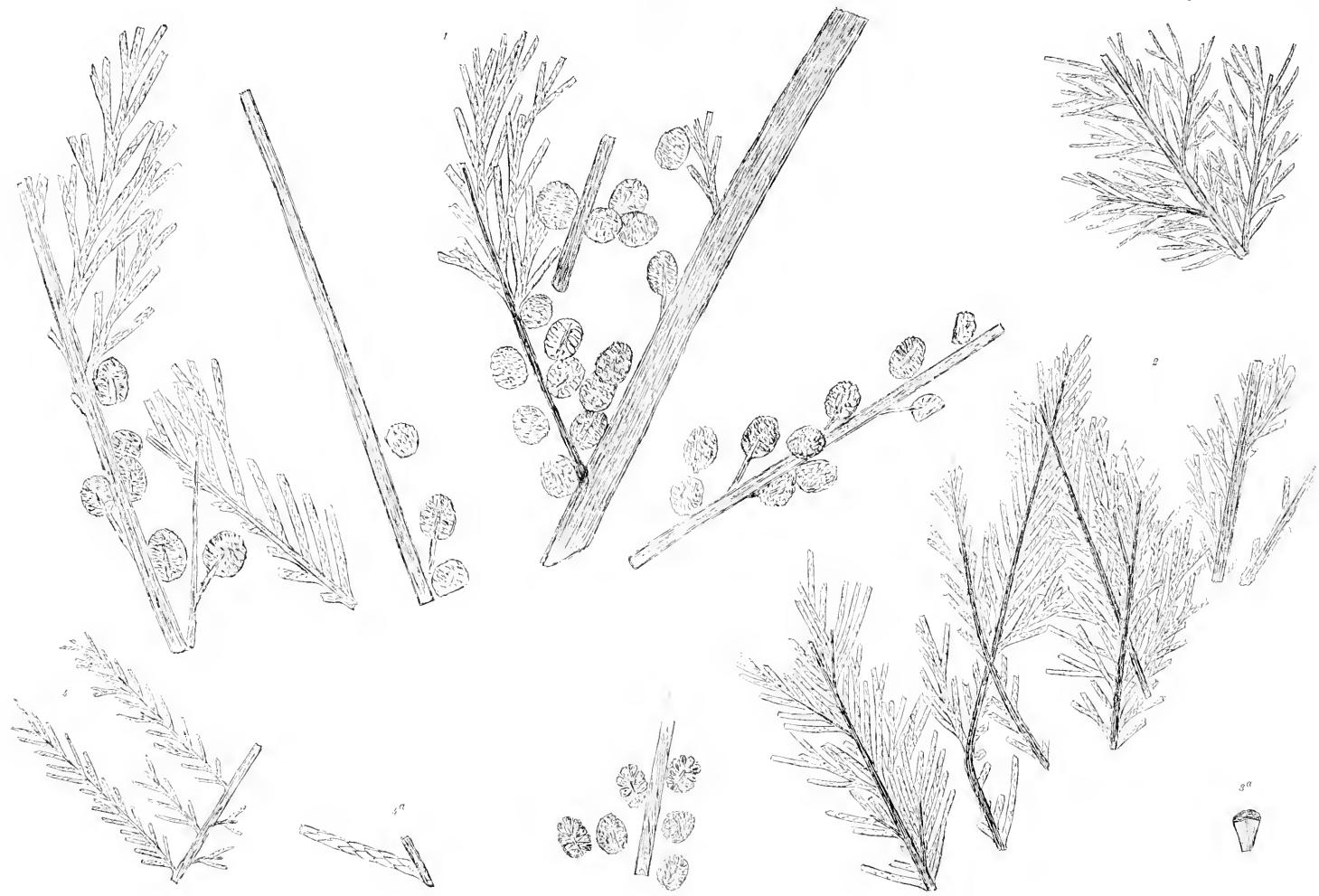




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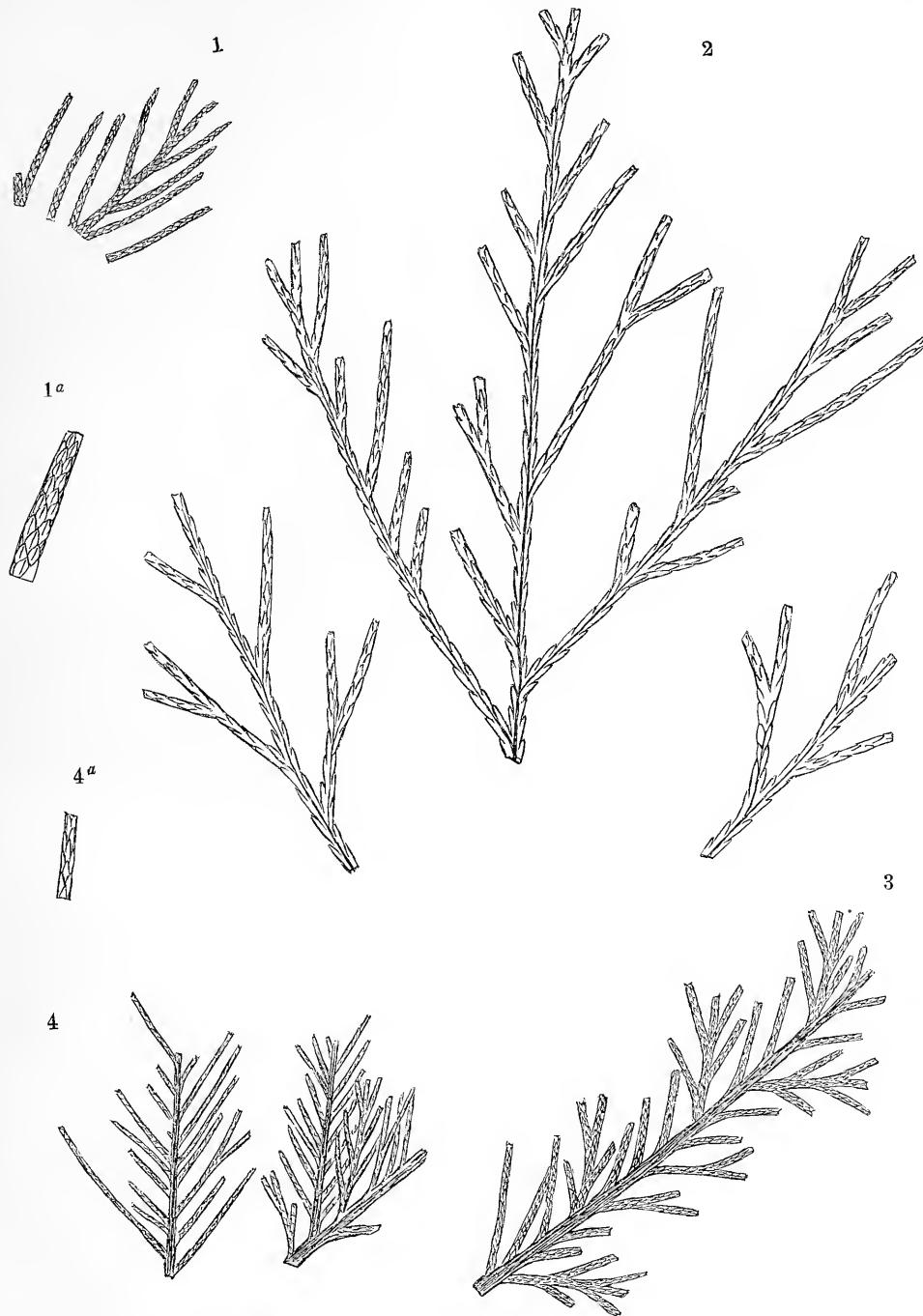


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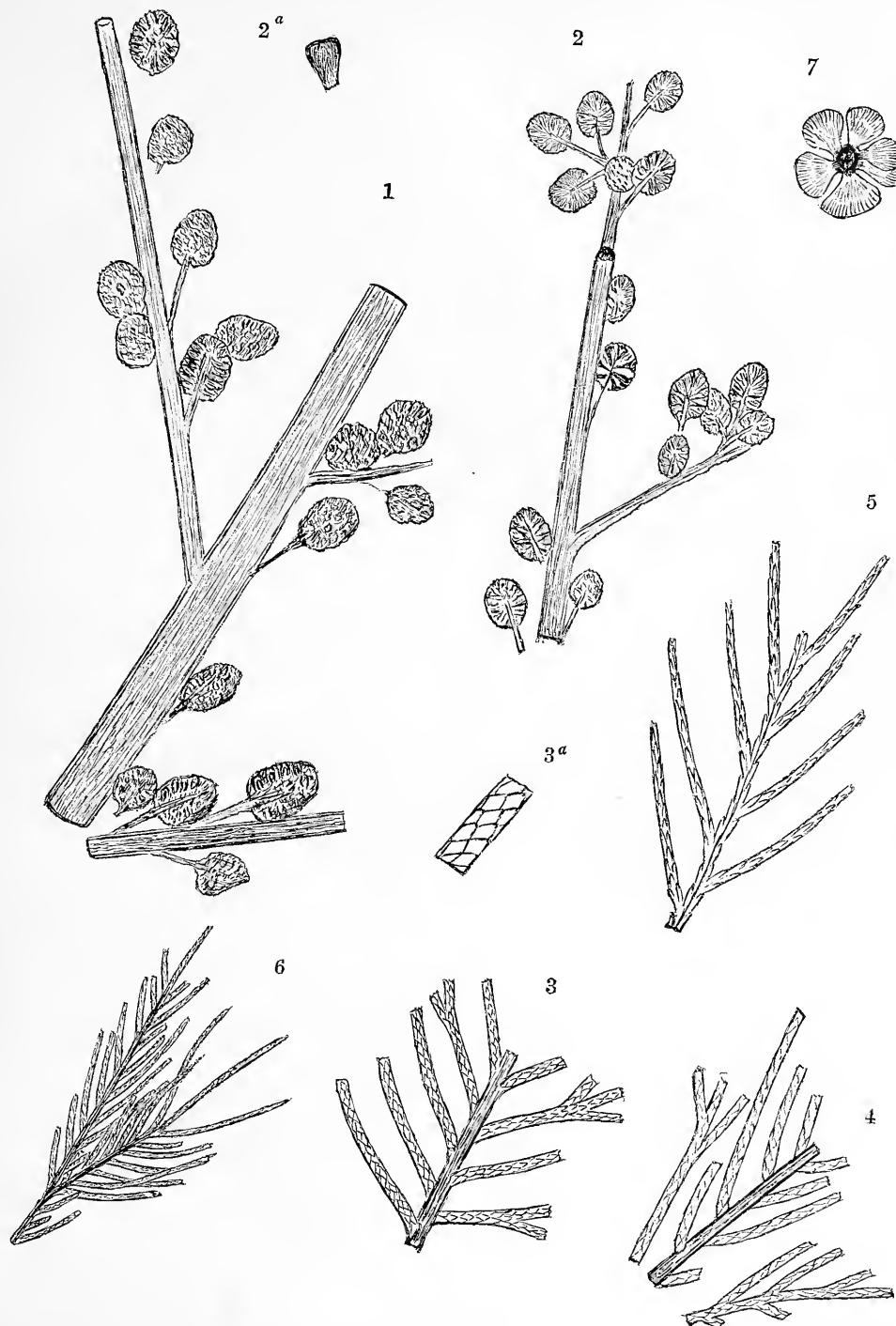


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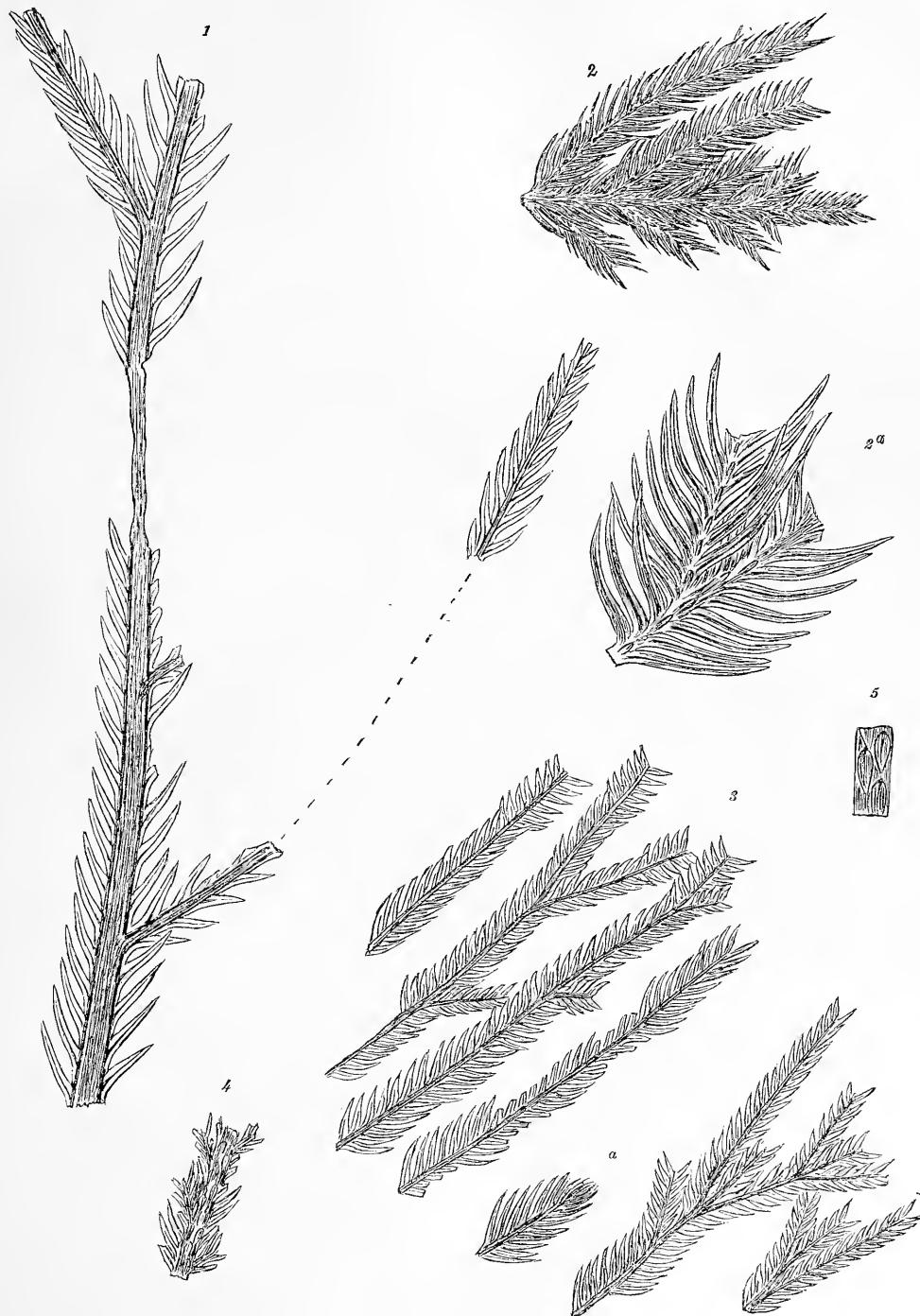


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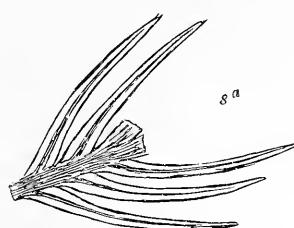


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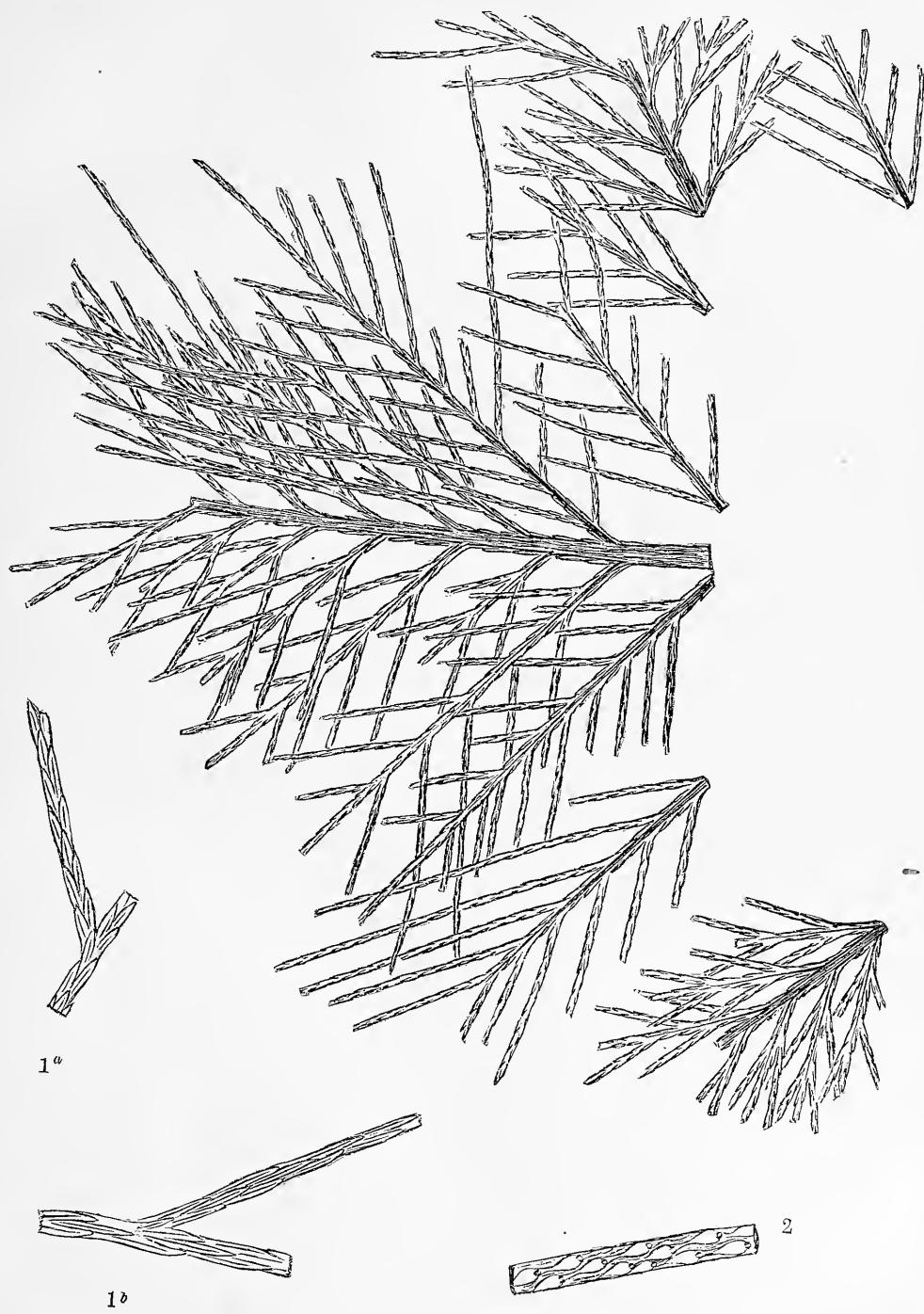
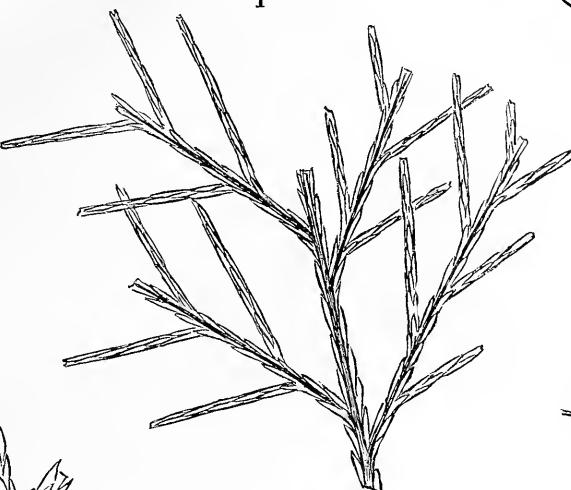




PLATE CXXIII.

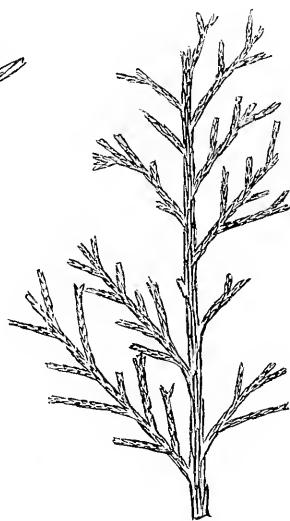
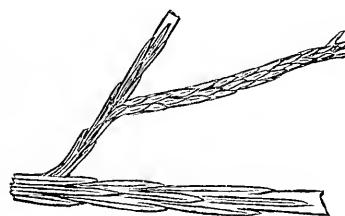
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1^a1^b

1

2

2^a3^a

3

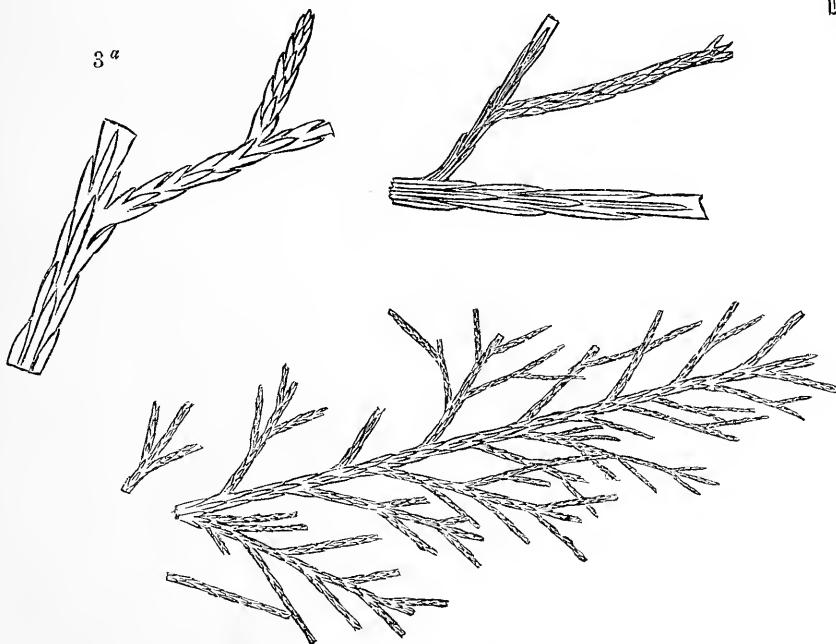


PLATE CXXIV.

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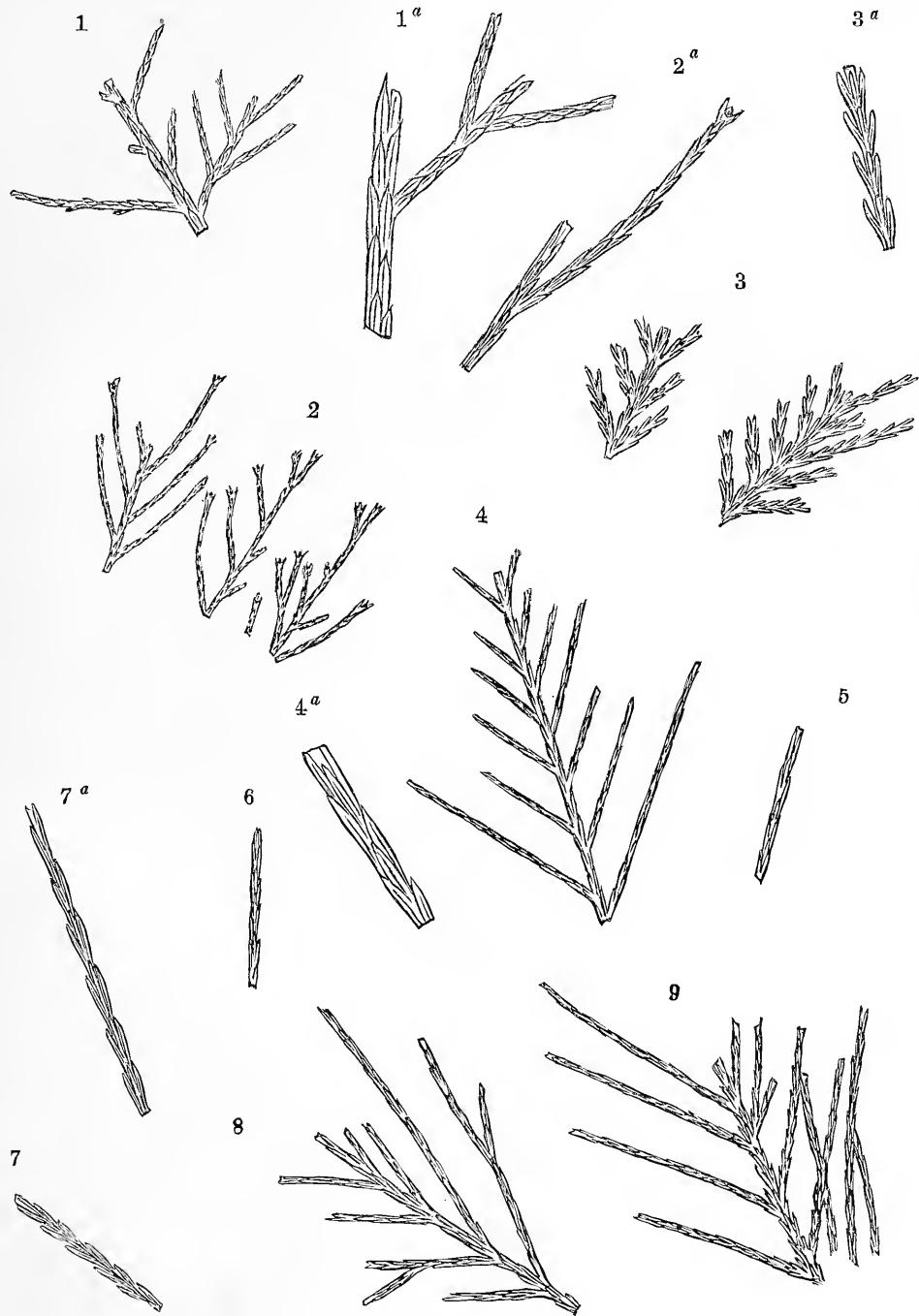


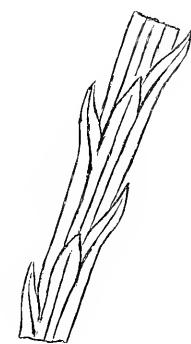


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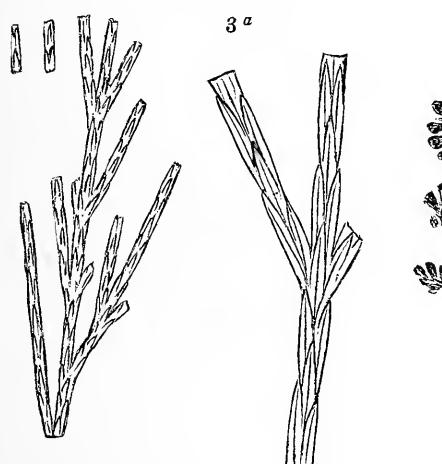
1



2



3



4



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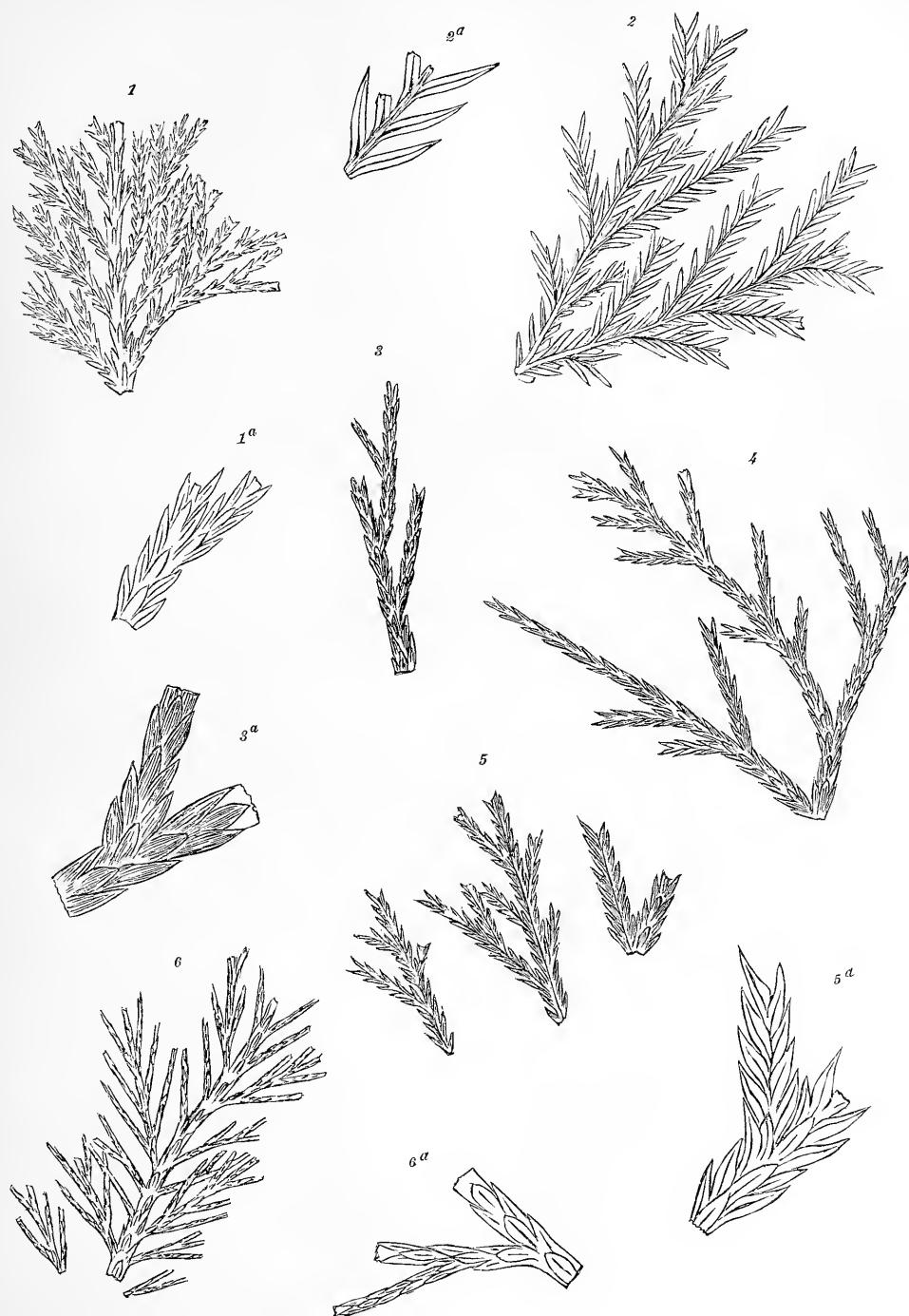


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1



2



4



3

2^a

5

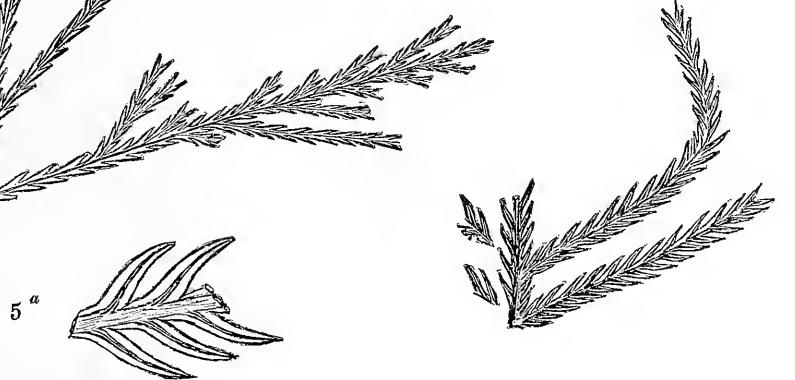
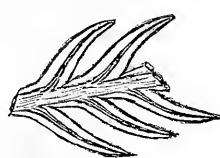
5^a

PLATE CXCVIII.

PLATE CXXVIII.

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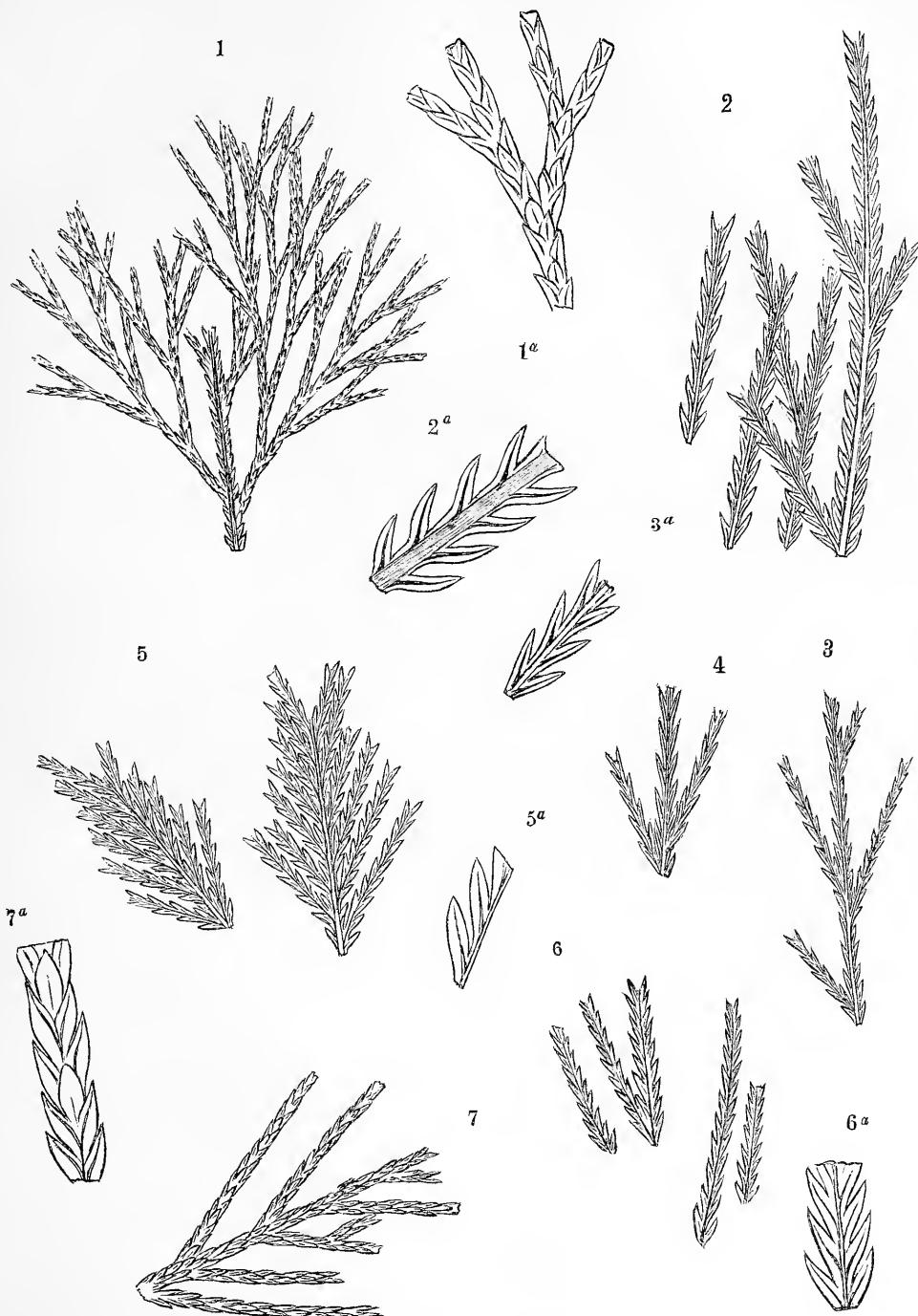
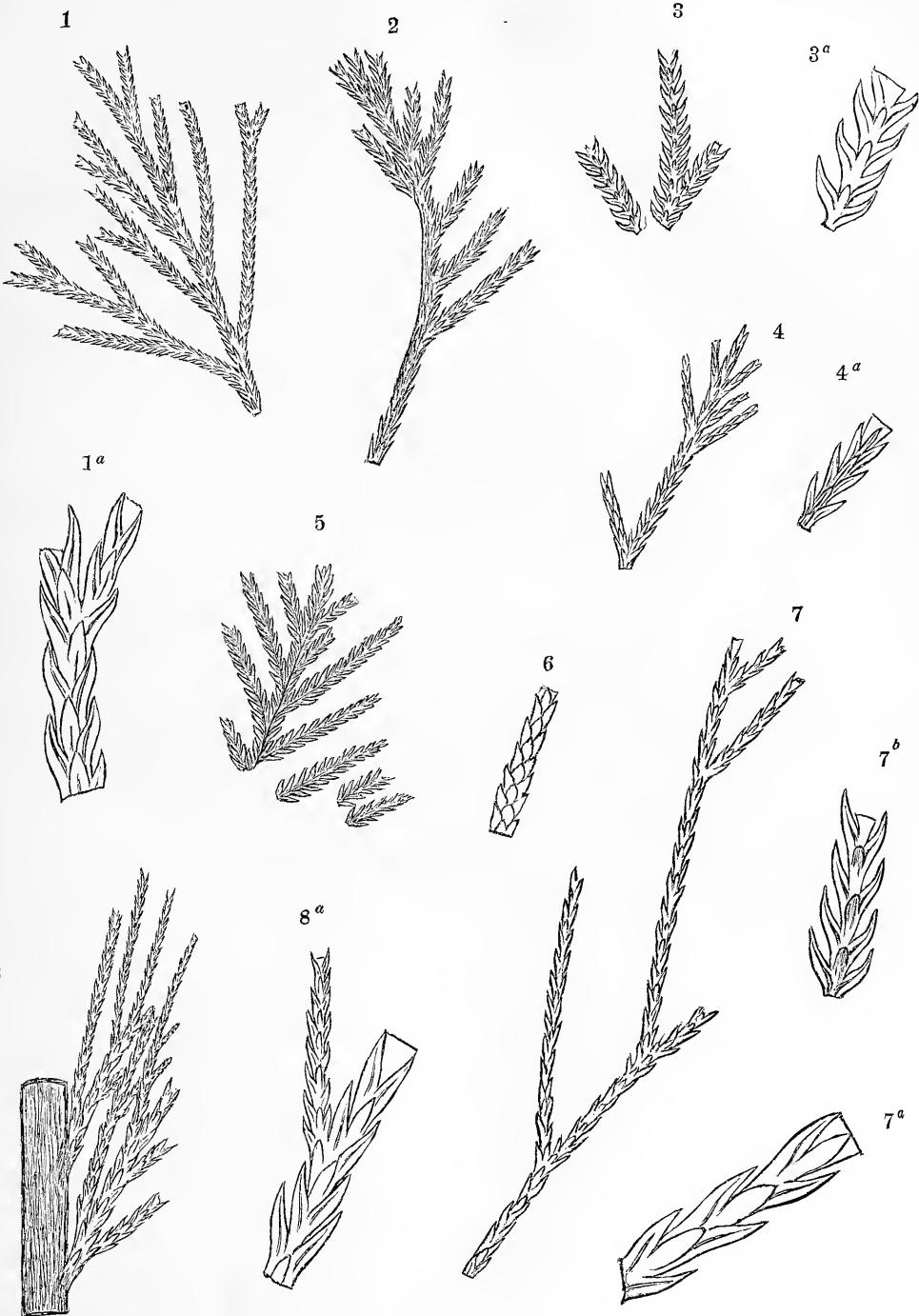


PLATE CXXIX.

PLATE CXXIX.

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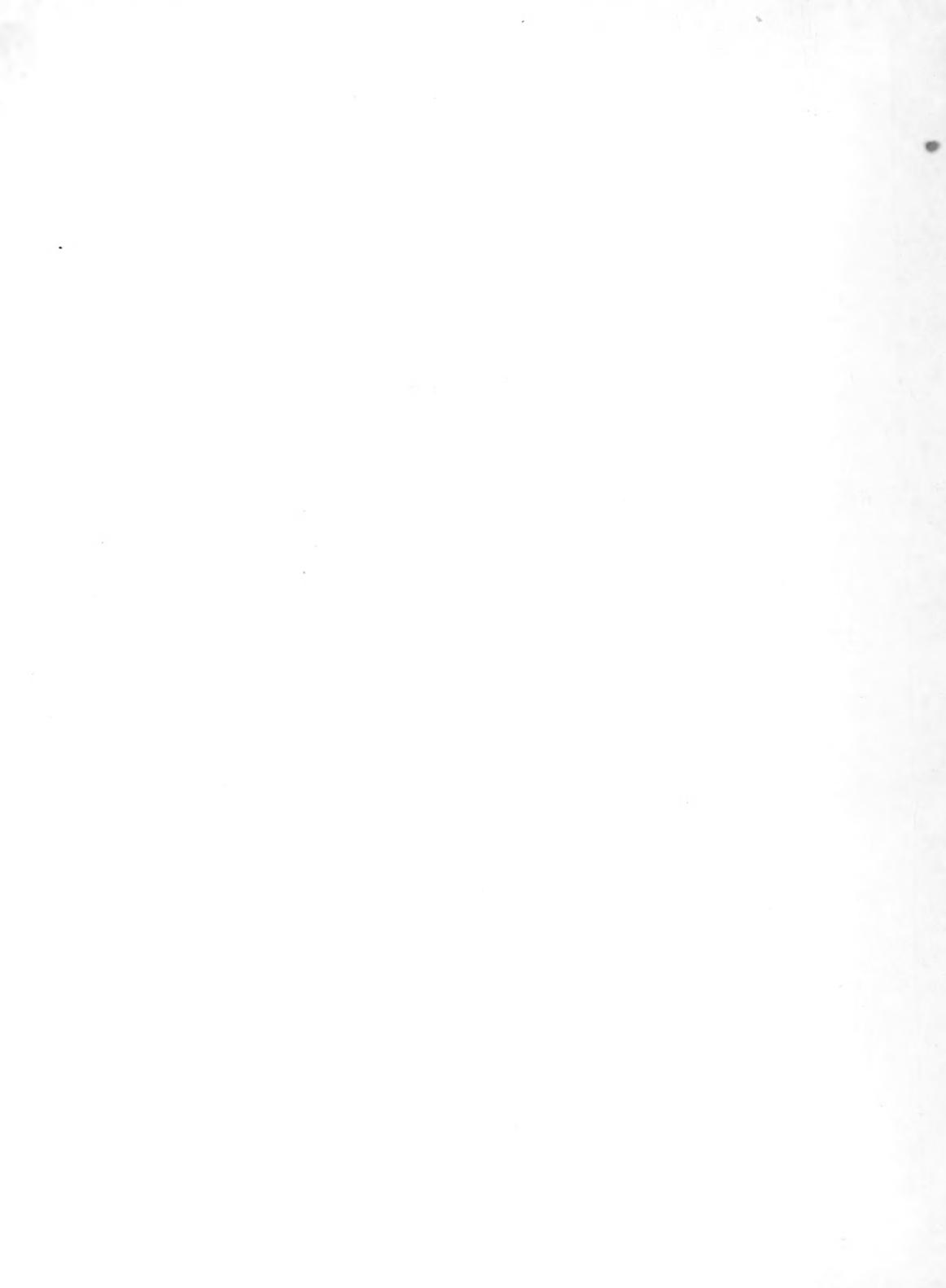


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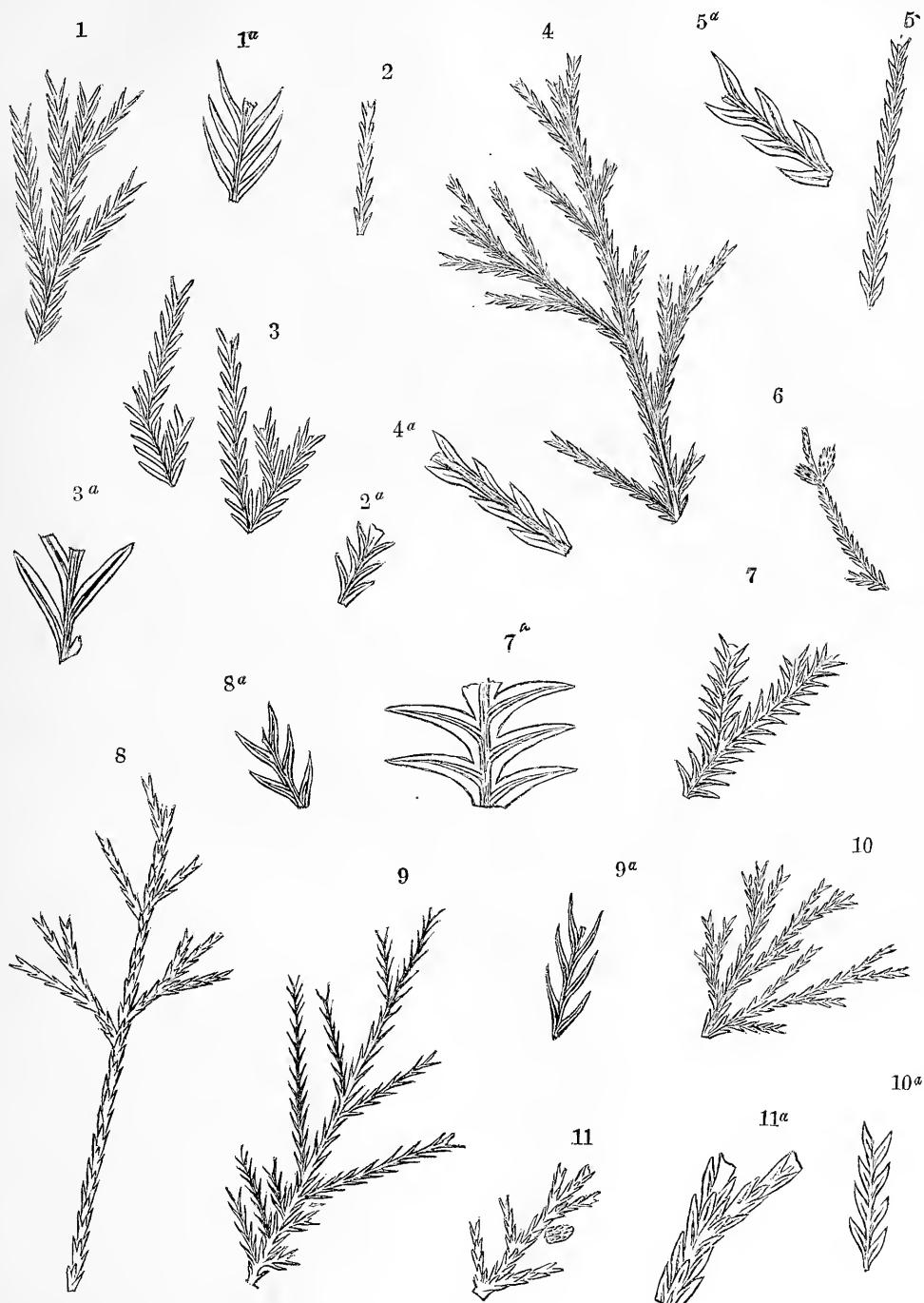




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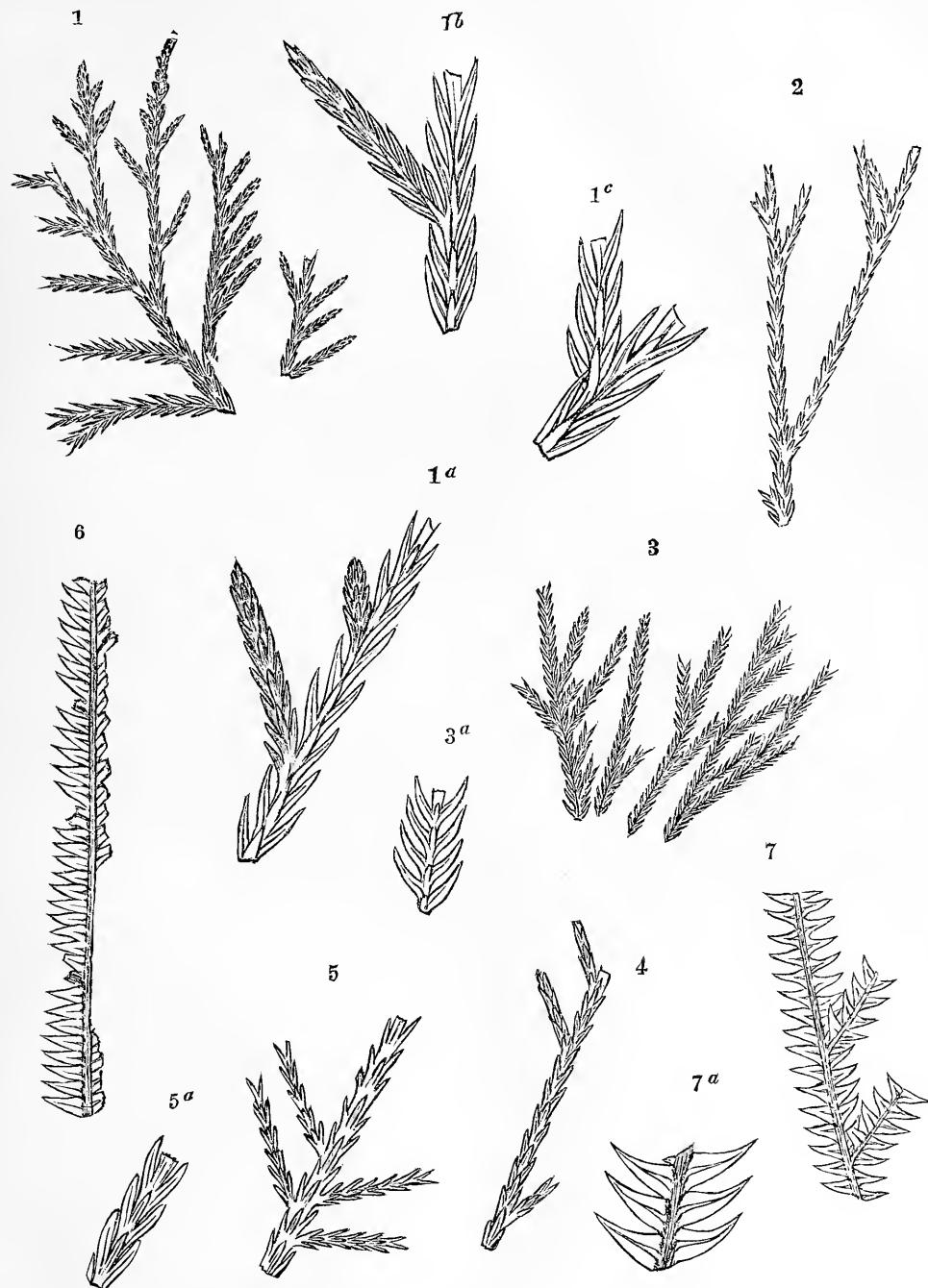


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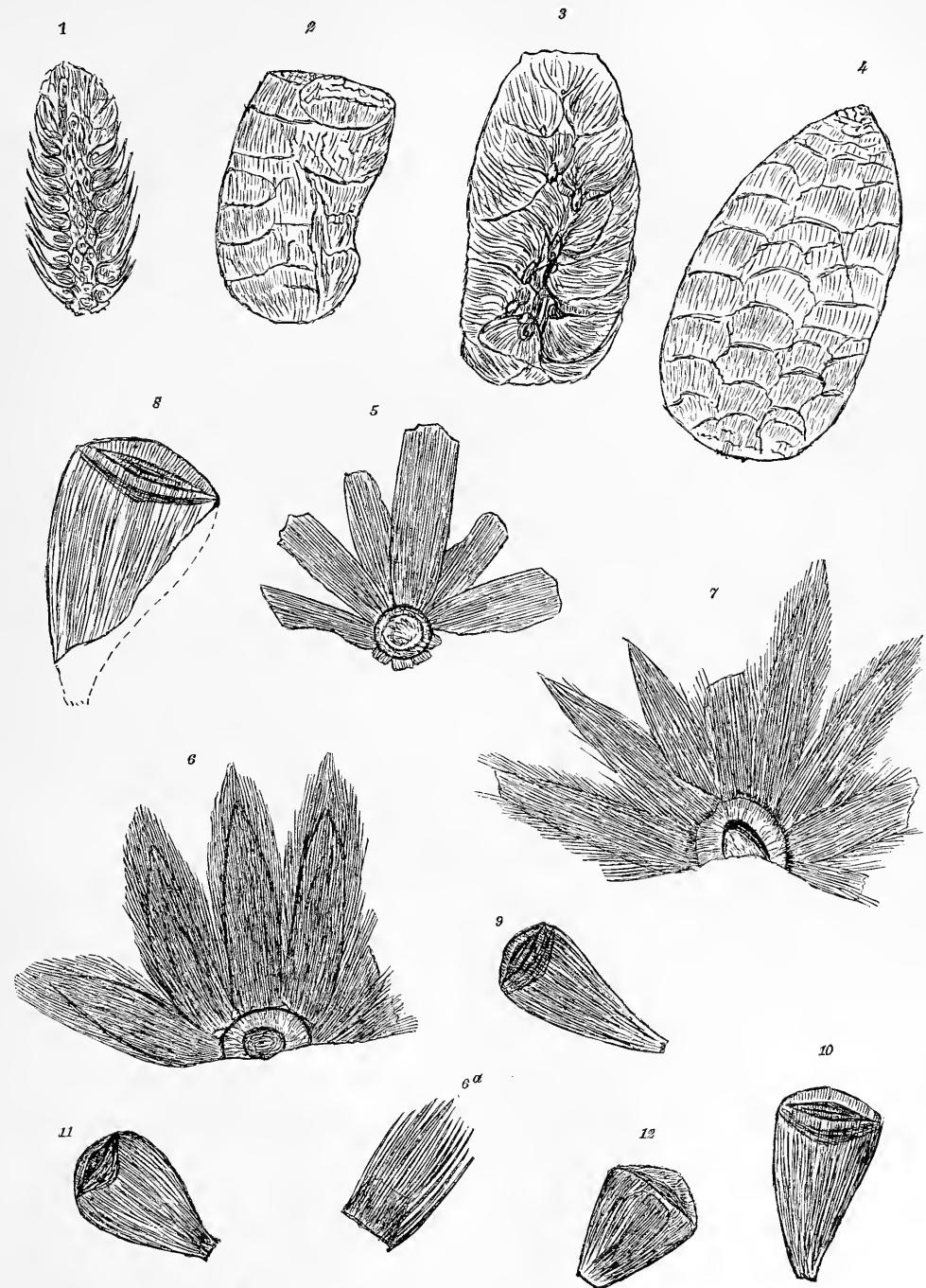


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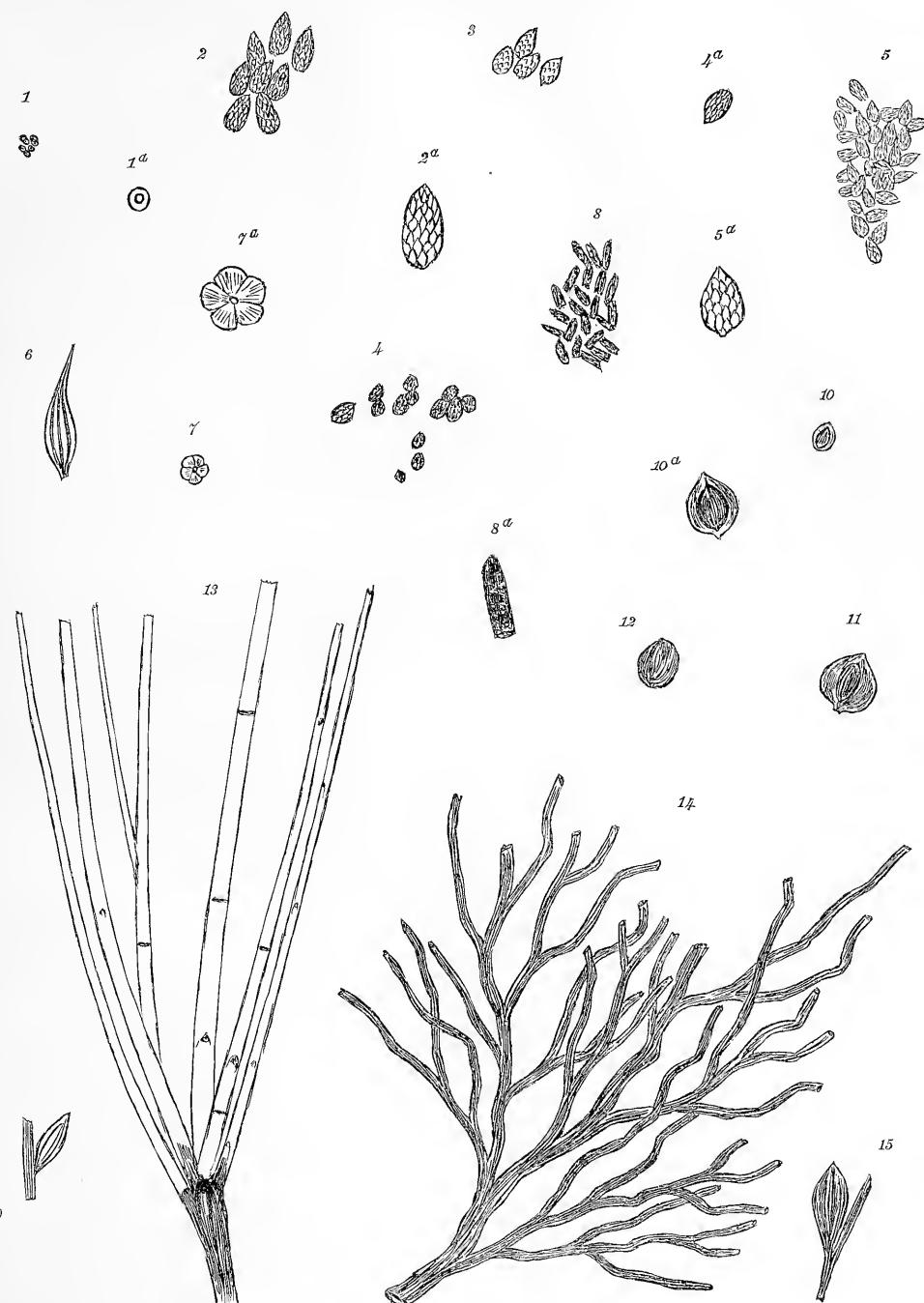


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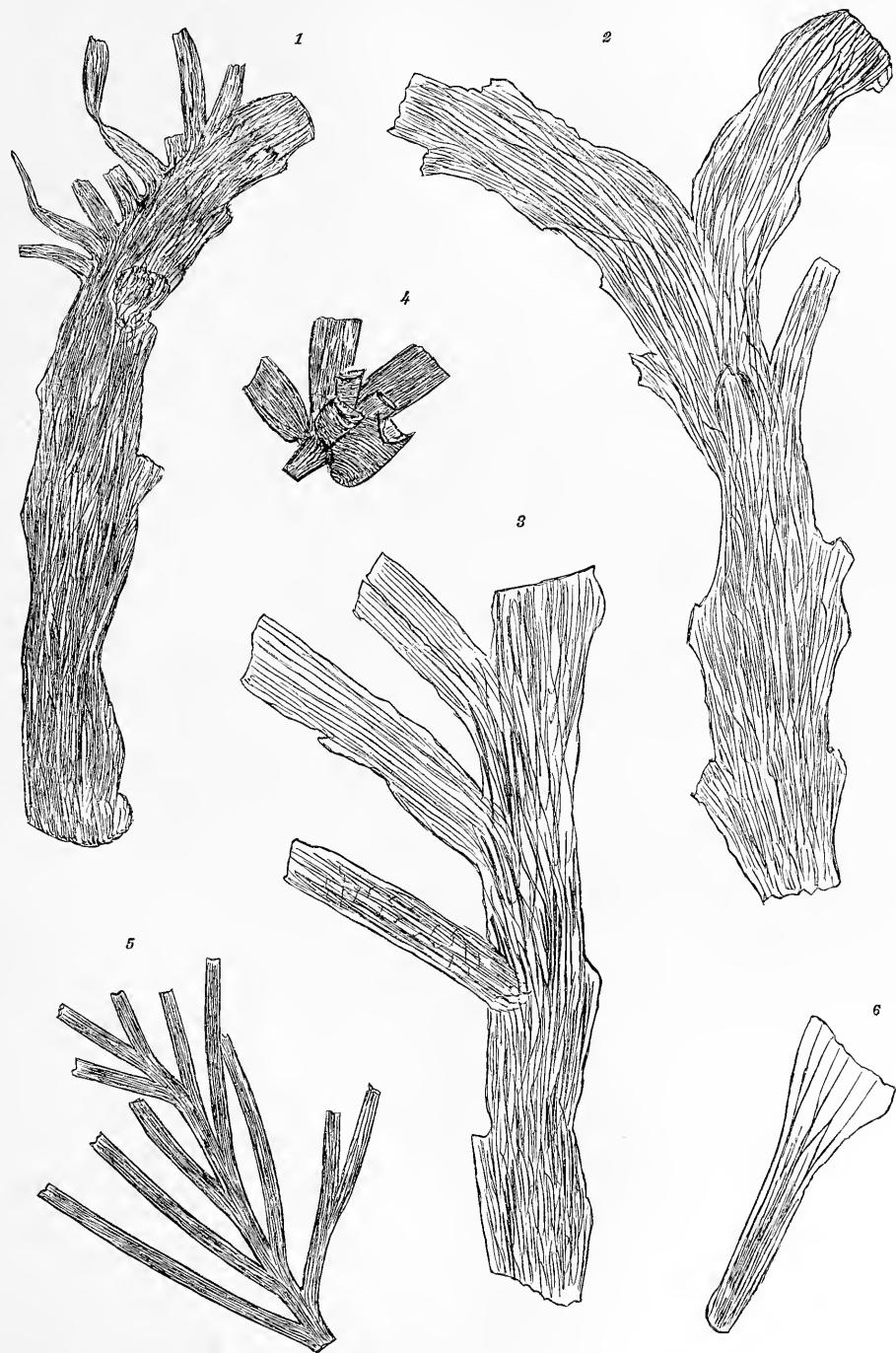


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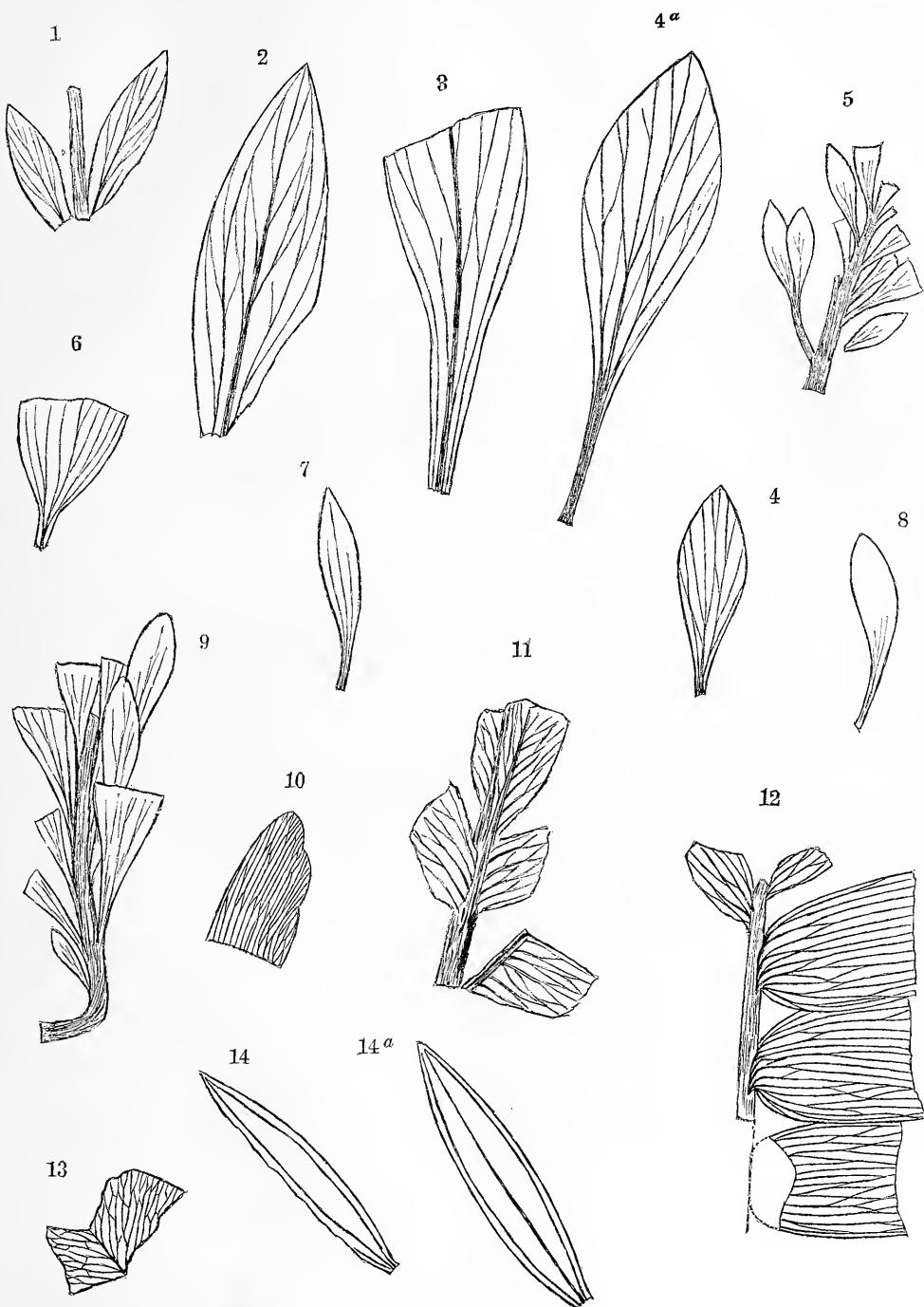
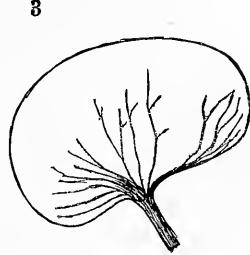
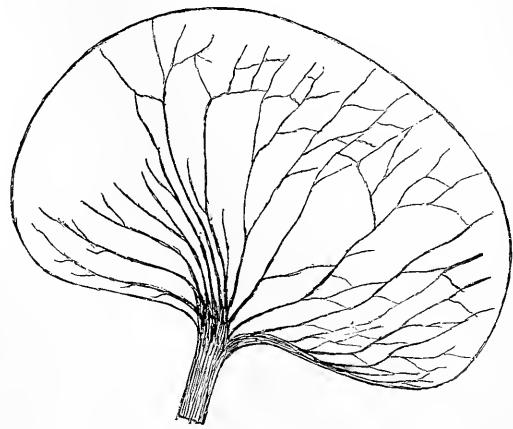
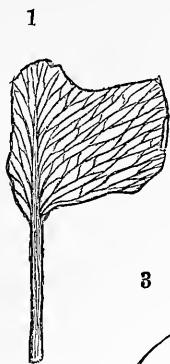


PLATE CXXXIX.

PLATE CXXXIX.

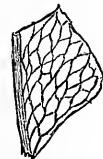
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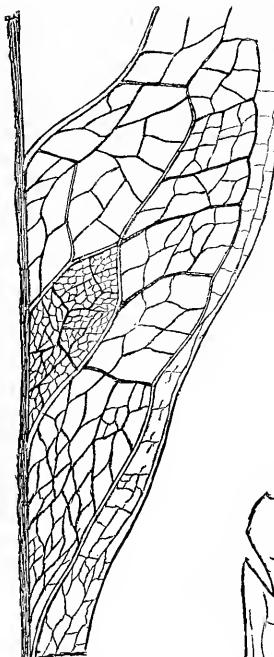
4a



4b



5a



6

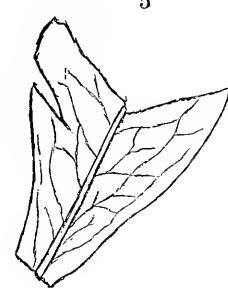
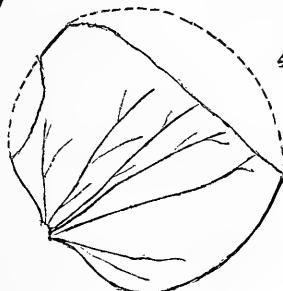
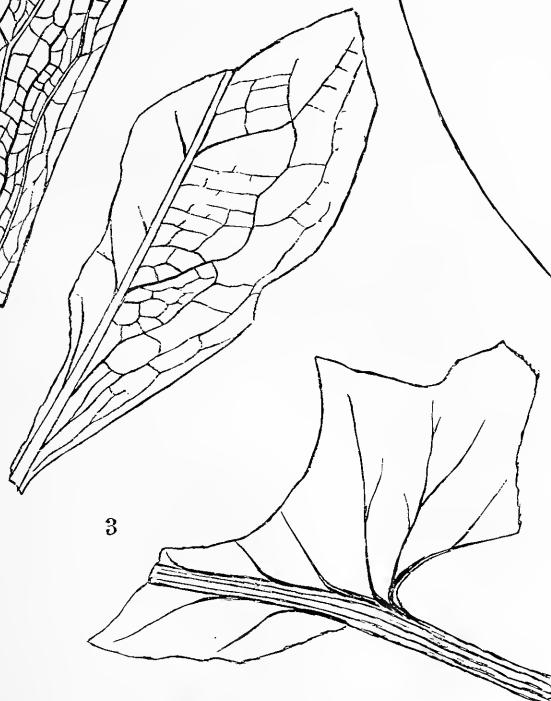
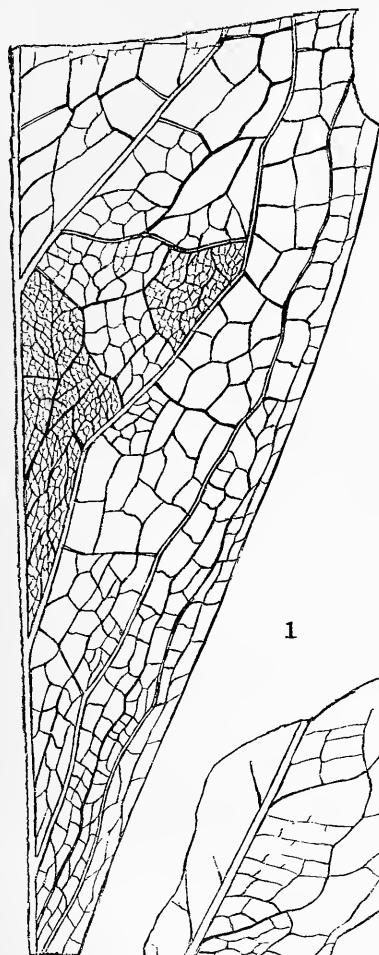


PLATE CXL.

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3. Fragment of an unusually large leaf.	292



3

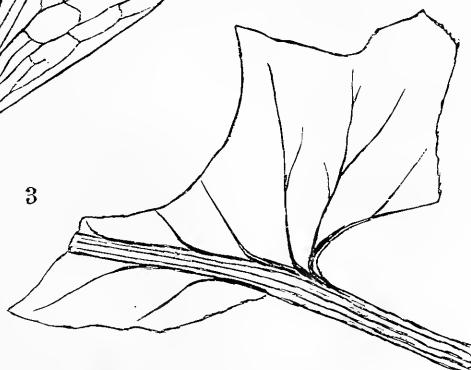


PLATE CXLI.

P L A T E C X L I .

	Page,
FIG. 1. <i>PROTEOPHYLLUM OVATUM</i> , sp. nov.	285
1. Portion of a leaf	285
1 ^a . Part of 1 magnified three diameters.....	285
FIG. 2. <i>FICOPHYLLUM TENUINERVE</i> , sp. nov.	292
2. Upper part of a leaf.....	292
2 ^a . Portion of 2 magnified three diameters.....	292

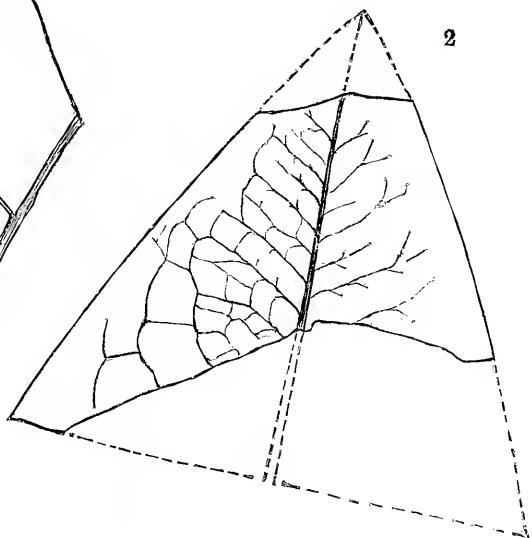
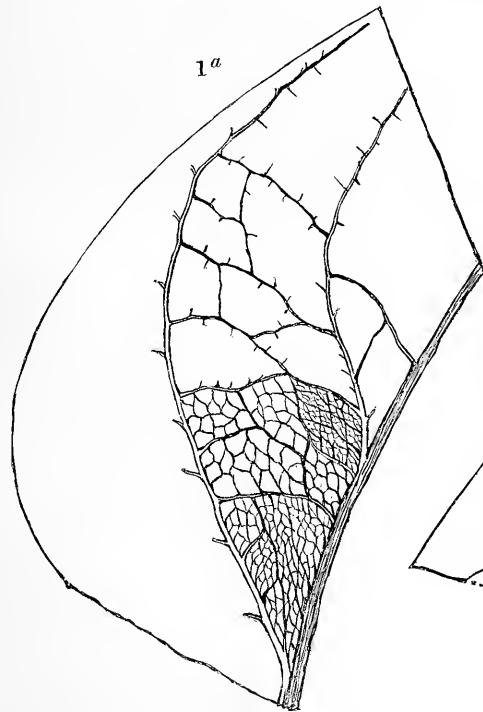
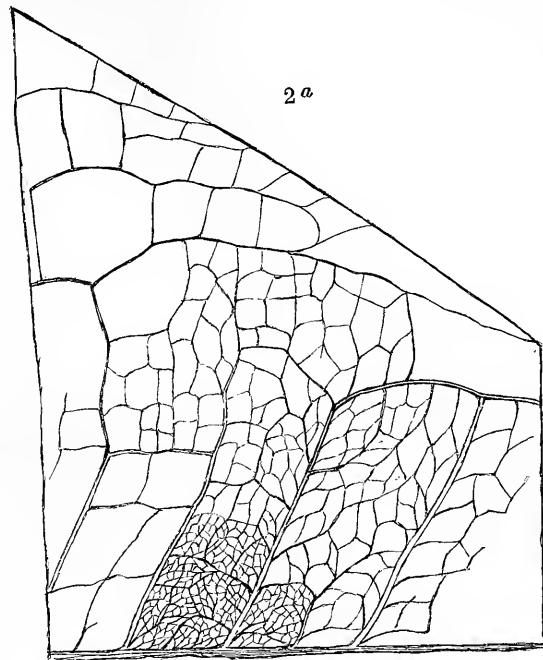
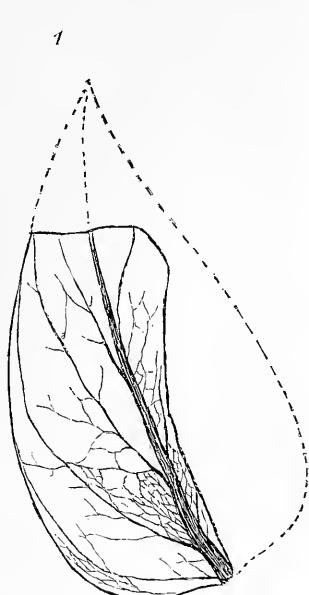


PLATE CXLI.

PLATE CXLII.

	Page.
FIGS. 1, 2. <i>PROTEPHYLLUM ELLIPTICUM</i> , sp. nov.	285
1. Basal portion of a leaf.	285
1 ^a . Portion of 1 magnified three diameters.	285
2. Restoration of the leaf, as made out from various fragments.	285

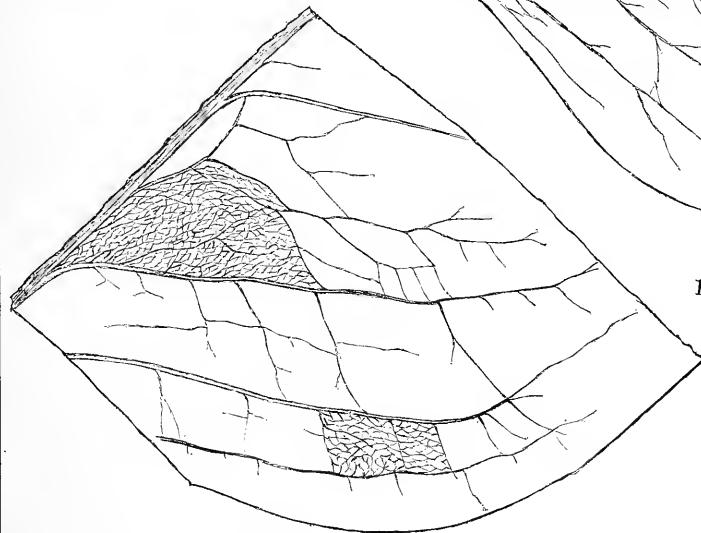
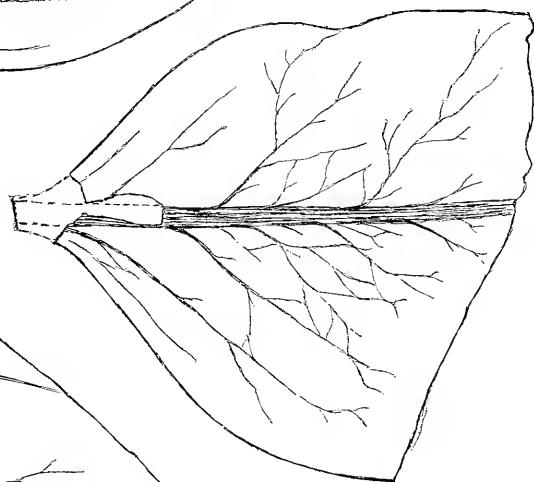
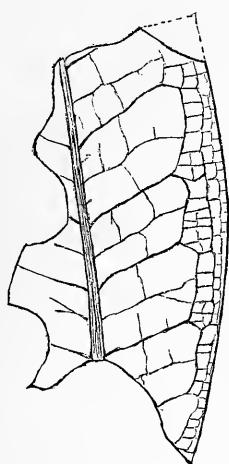


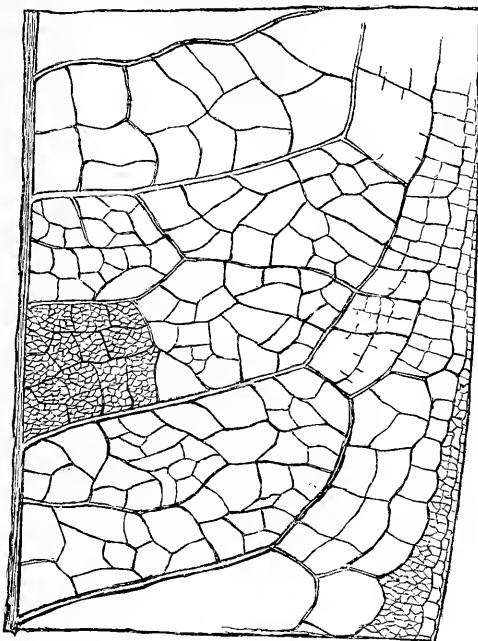
PLATE CXLIII.

P L A T E C X L I I I.

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FIGS. 1,3. <i>FICUS VIRGINIENSIS</i> , sp. nov	295
1. Fragment of a leaf	295
1 ^a . Portion of 1 magnified three diameters	295
3. Restoration of the leaf as made out from various fragments.....	295
FIG. 2. <i>ROGERSIA ANGUSTIFOLIA</i> , sp. nov	288
2. Leaf nearly complete	288
2 ^a . Portion of 2 magnified three diameters	288



1^a



3

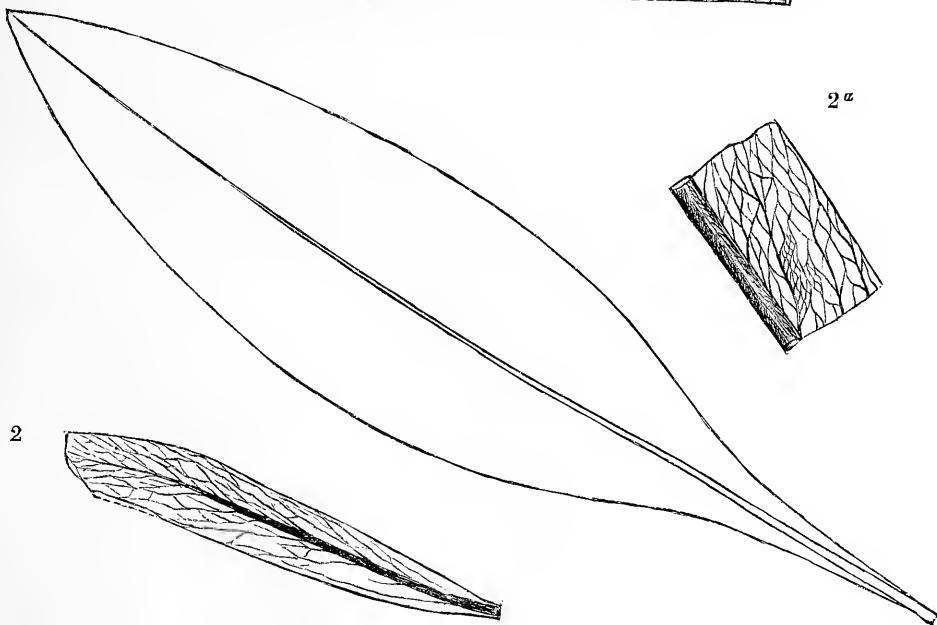
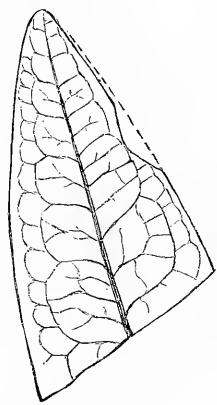
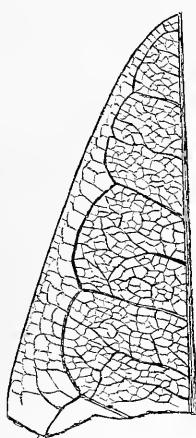


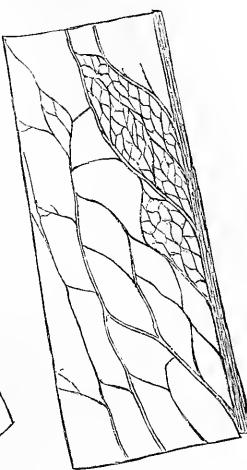
PLATE CXLIV.

P L A T E C X L I V.

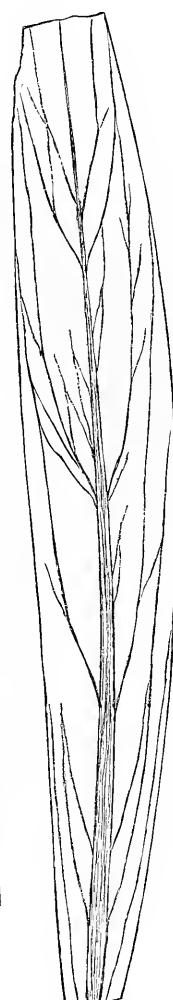
	Page.
FIG. 1. <i>FICUS VIRGINIENSIS</i> , sp. nov.	295
1. Upper part of a leaf	295
1 ^a . Portion of 1 magnified three diameters.....	295
FIG. 2. <i>ROGERSIA LONGIFOLIA</i> , sp. nov.	297
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2 ^b . Portion of 2 magnified more than 2 ^a , to show the ultimate reticulation	297
FIG. 3. <i>FICOPHYLLUM CRASSINERVE</i> , sp. nov.	291
3. Upper portion of a large leaf	291



2^b



2^a



3

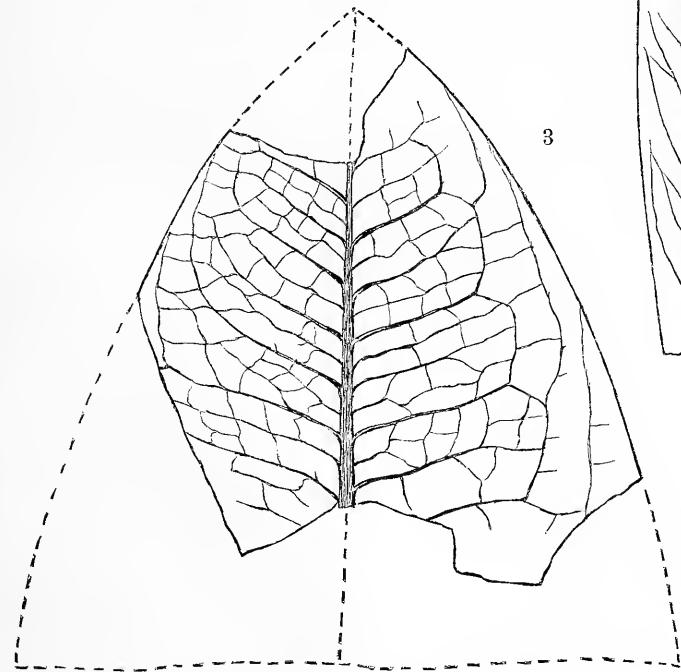
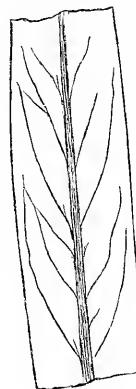
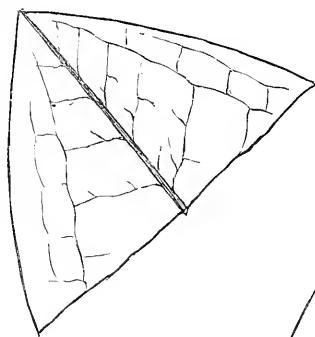


PLATE CXLV.

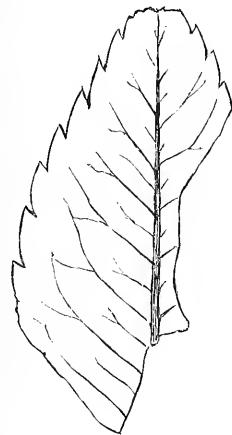
P L A T E C X L V.

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FIGS. 1, 4. <i>FICOPHYLLUM TENUINERVE</i> , sp. nov	292
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FIG. 2. <i>FICOPHYLLUM SERRATUM</i> , sp. nov.....	294
2. Upper part of a leaf.....	294
FIG. 3. <i>FICOPHYLLUM CRASSINERVE</i> , sp. nov.....	291
3. Fragment of a leaf of medium size	291

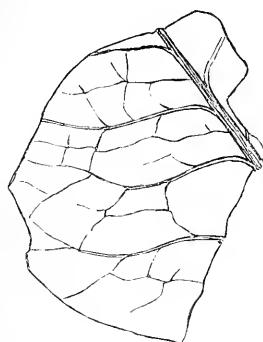
1



2



3



4

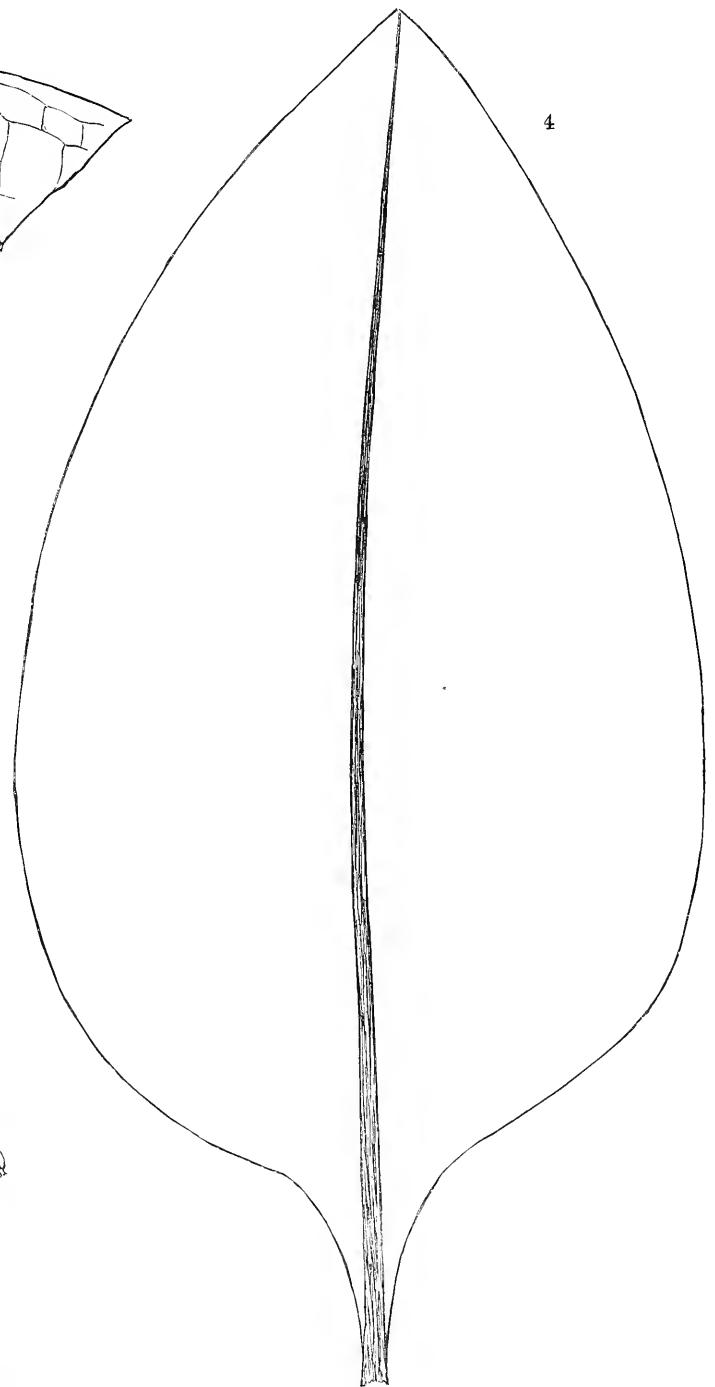


PLATE CXLVI.

P L A T E C X L V I .

	Page.
FIG. 1. <i>FICOPHYLLUM CRASSINERVE</i> , sp. nov	291
1. Small fragment of a leaf.....	291
1 ^a . Portion of 1 magnified three diameters.....	291
FIGS. 2, 4. <i>SALICIPHYLLUM ELLIPTICUM</i> , sp. nov	303
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5. Nearly entire leaf.....	304

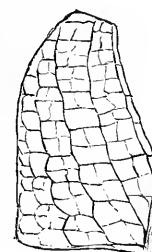
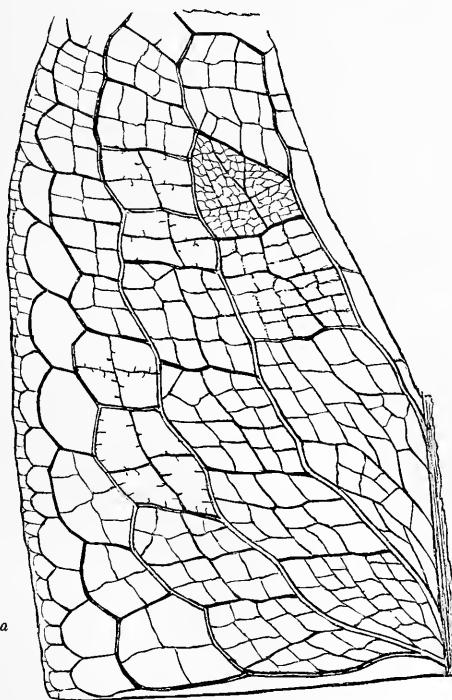
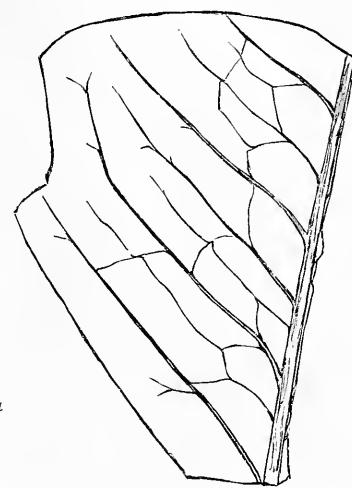
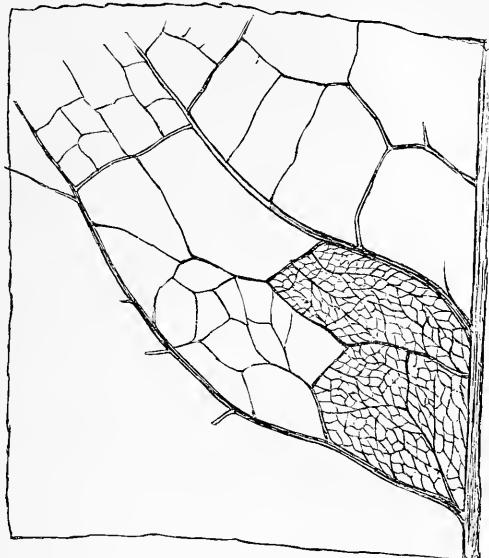


PLATE CXLVII.

P L A T E C X L V I I .

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3a. Part of 3 magnified three diameters	297
FIG. 4. <i>FICOPHYLLUM CRASSINERVE</i> , sp. nov	291
4. Fragment of a very large leaf, natural size.....	291

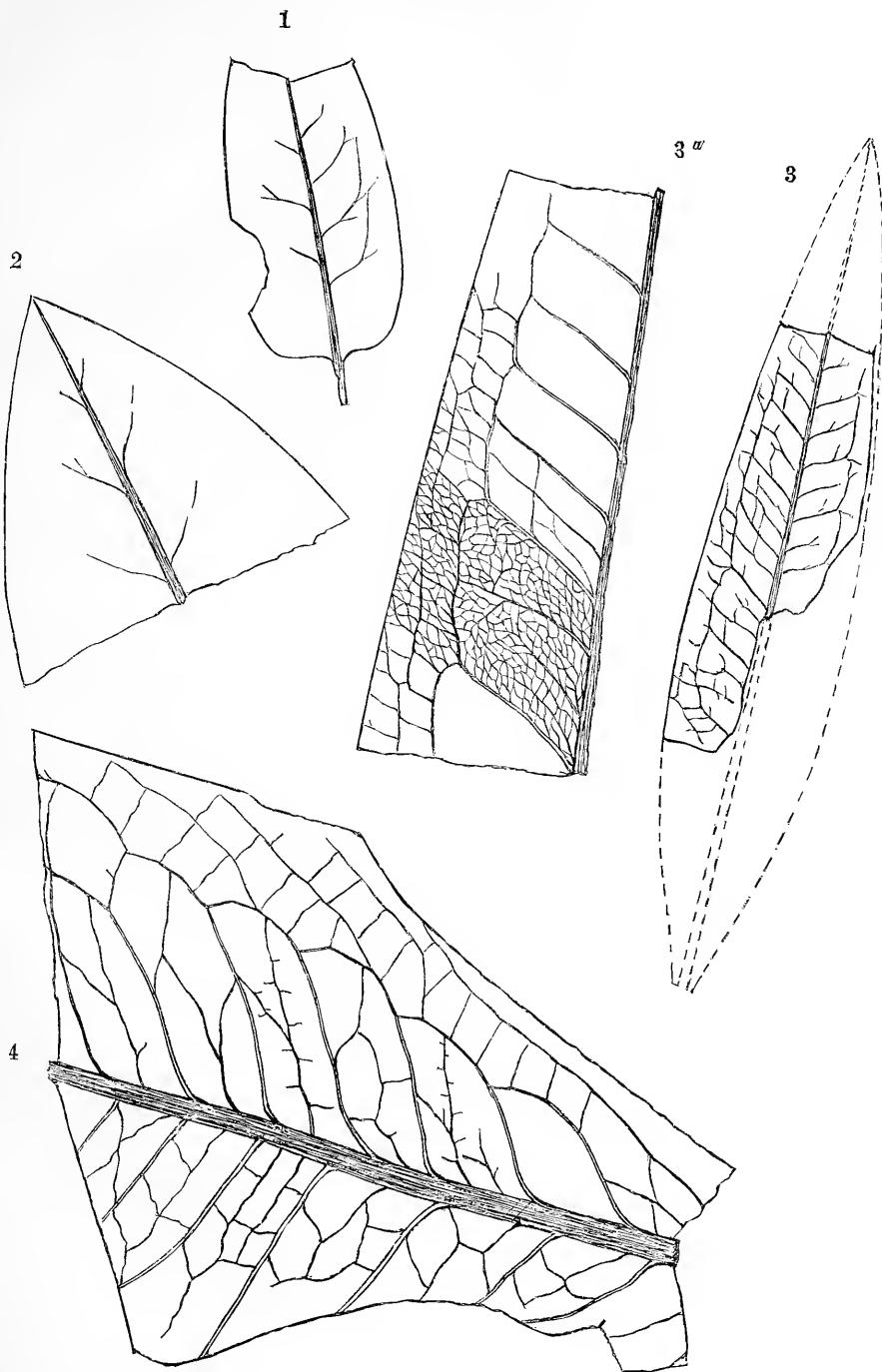


PLATE CXLVIII.

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5. Summit of a small leaf.....	295

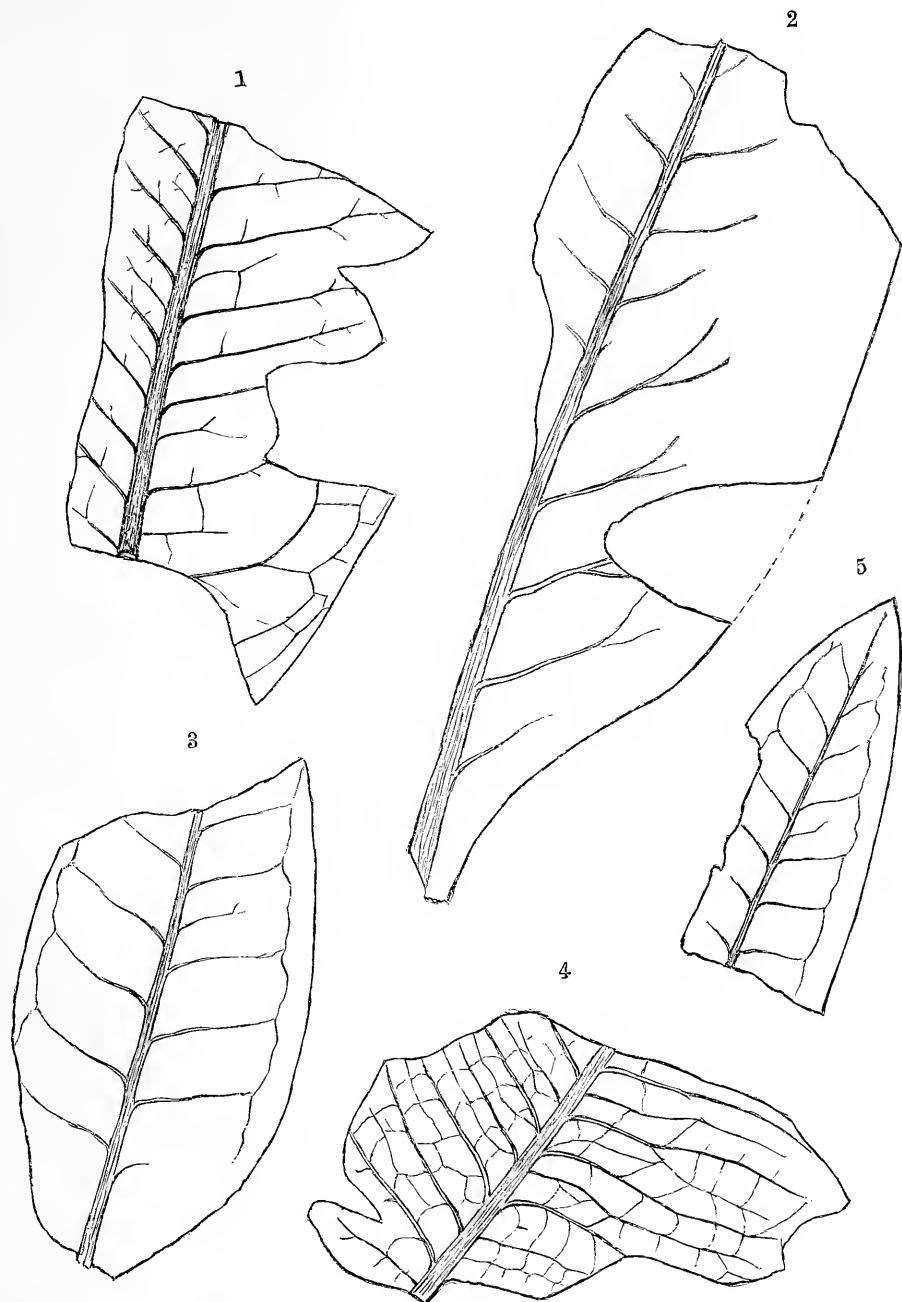


PLATE CXLIX.

PLATE CXLIX.

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FIG. 9. <i>FICOPHYLLUM SERRATUM</i> , sp. nov.	294
9. Upper part of a leaf.....	294

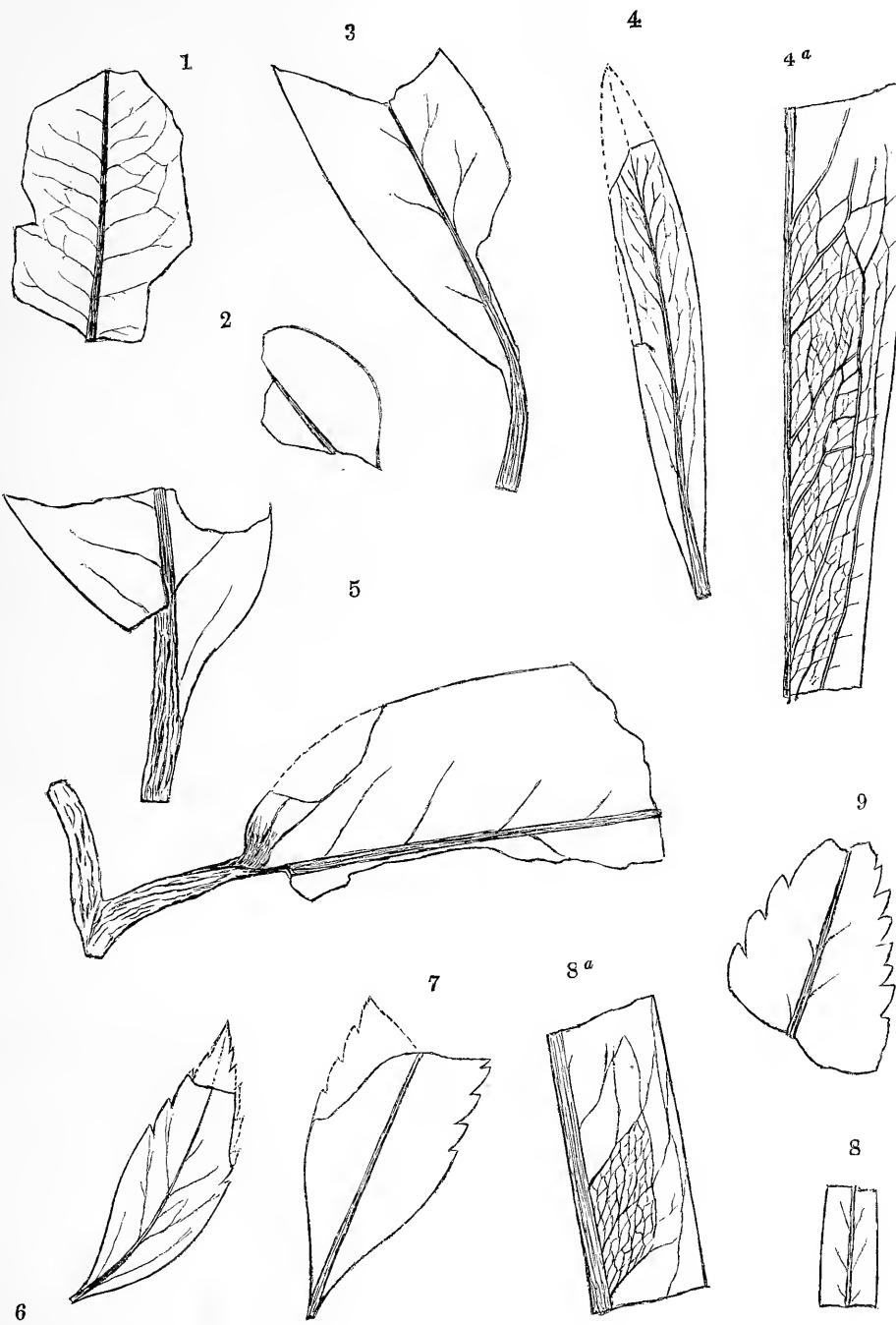


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12 ^a . Part of 12 magnified three diameters	302
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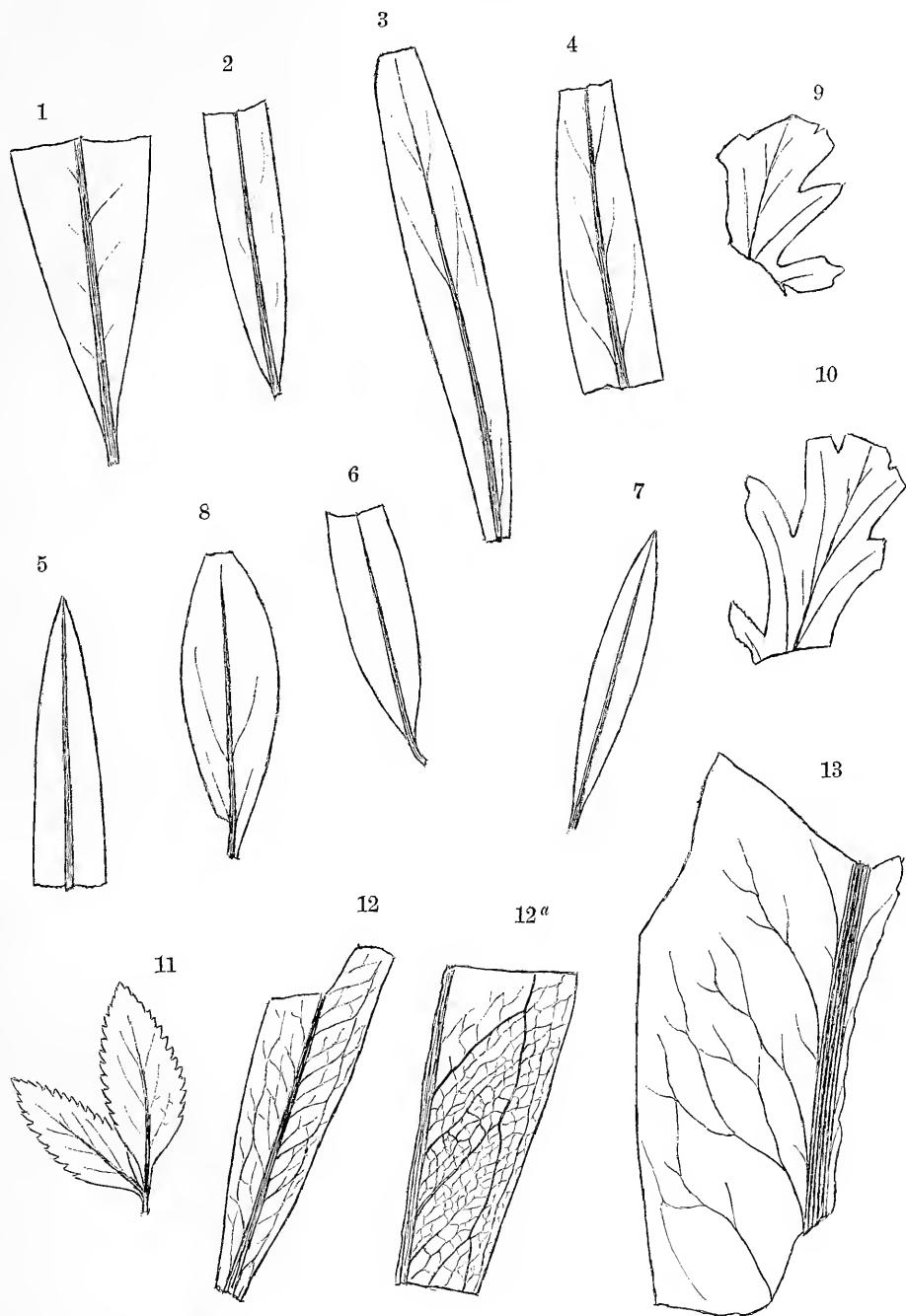


PLATE CLI.

PLATE CLI.

	Page.
FIG. 1. <i>SAPINDOPSIS VARIABILIS</i> , sp. nov	298
1. Upper part of a compound leaf.....	298
1 ^a . Portion of 1 magnified to show nervation.....	298
FIGS. 2,3. <i>SAPINDOPSIS MAGNIFOLIA</i> , sp. nov.....	297
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3. Several leaflets detached.....	297
FIG. 4. <i>BOMBAX VIRGINIENSIS</i> , sp. nov	310
4. Lower portion of a leaf	310

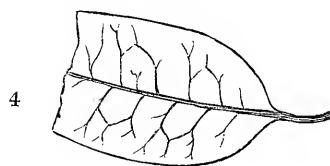
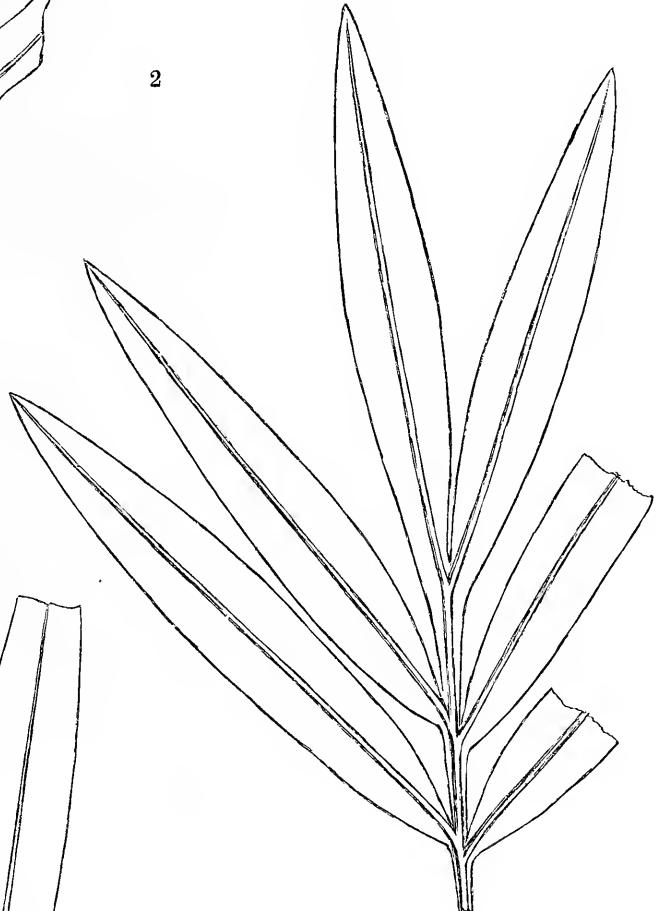
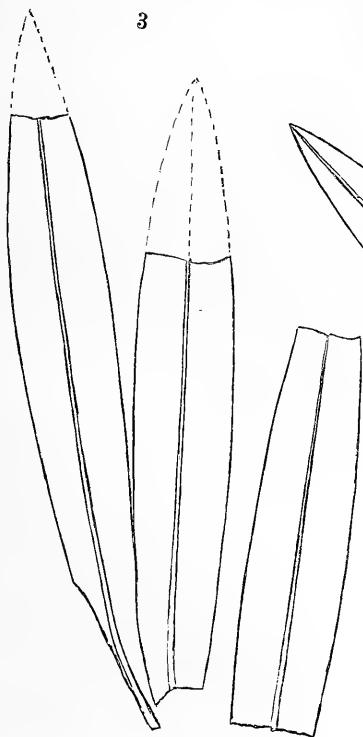
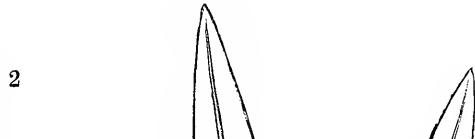
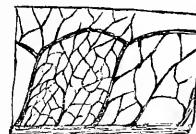
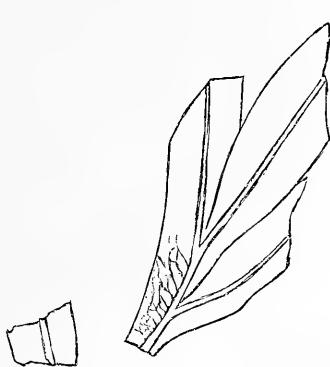
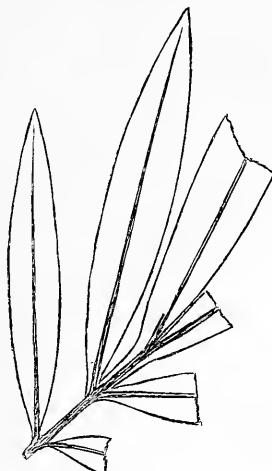


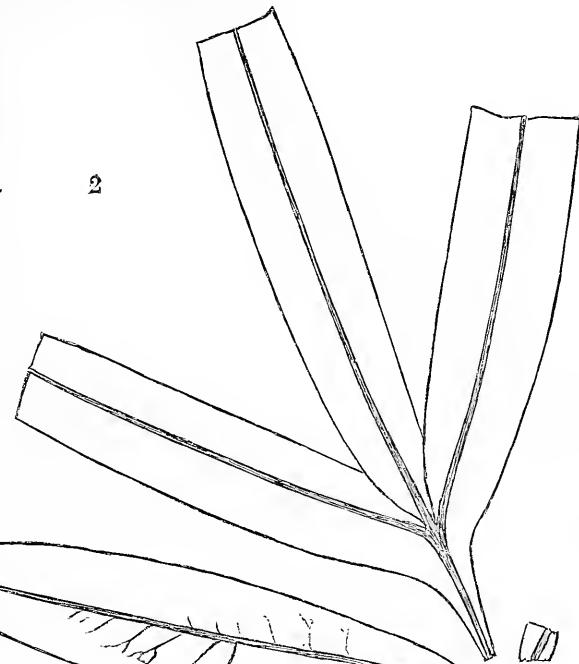
PLATE CLII.

PLATE CLII.

	Page.
FIGS. 1, 4. <i>SAPINDOPSIS VARIABILIS</i> , sp. nov	298
1. Upper part of a small compound leaf	298
4. Fragments from the upper part of a compound leaf	298
4 ^a . Portion of 4 magnified three diameters	298
FIGS. 2, 3. <i>SAPINDOPSIS MAGNIFOLIA</i> , sp. nov	297
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FIG. 5. <i>SASSAFRAS CRETACEUM</i> Newb., var. <i>HETEROLOBUM</i>	289
5. Entire leaf	289



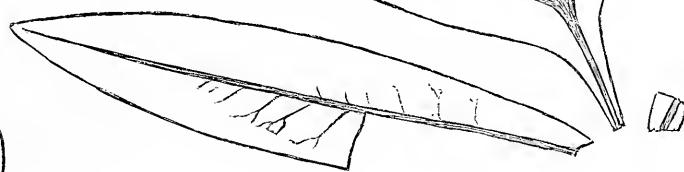
1



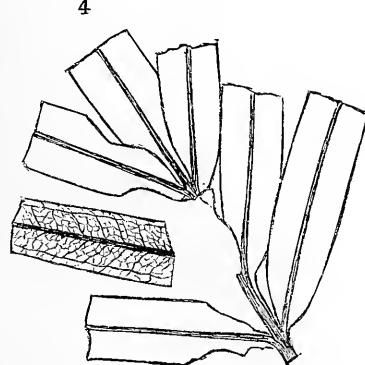
2



5



3



4

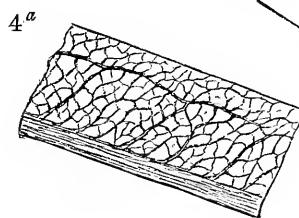
4^a

PLATE CLIII.

PLATE CLIII.

	Page.
FIG. 1. <i>SAPINDOPSIS TENUINERVIS</i> , sp. nov.	301
1. Upper part of a compound leaf	301
1 ^a . Portion of the base of a leaflet magnified three diameters	301
1 ^b . Portion of the middle of a leaflet magnified three diameters	301
FIG. 2. <i>SAPINDOPSIS MAGNIFOLIA</i> , sp. nov.	297
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3. Fragment of a compound leaf.....	298
FIG. 4. <i>SAPINDOPSIS BREVIFOLIA</i> , sp. nov.	300
4. Summit of a compound leaf.....	300

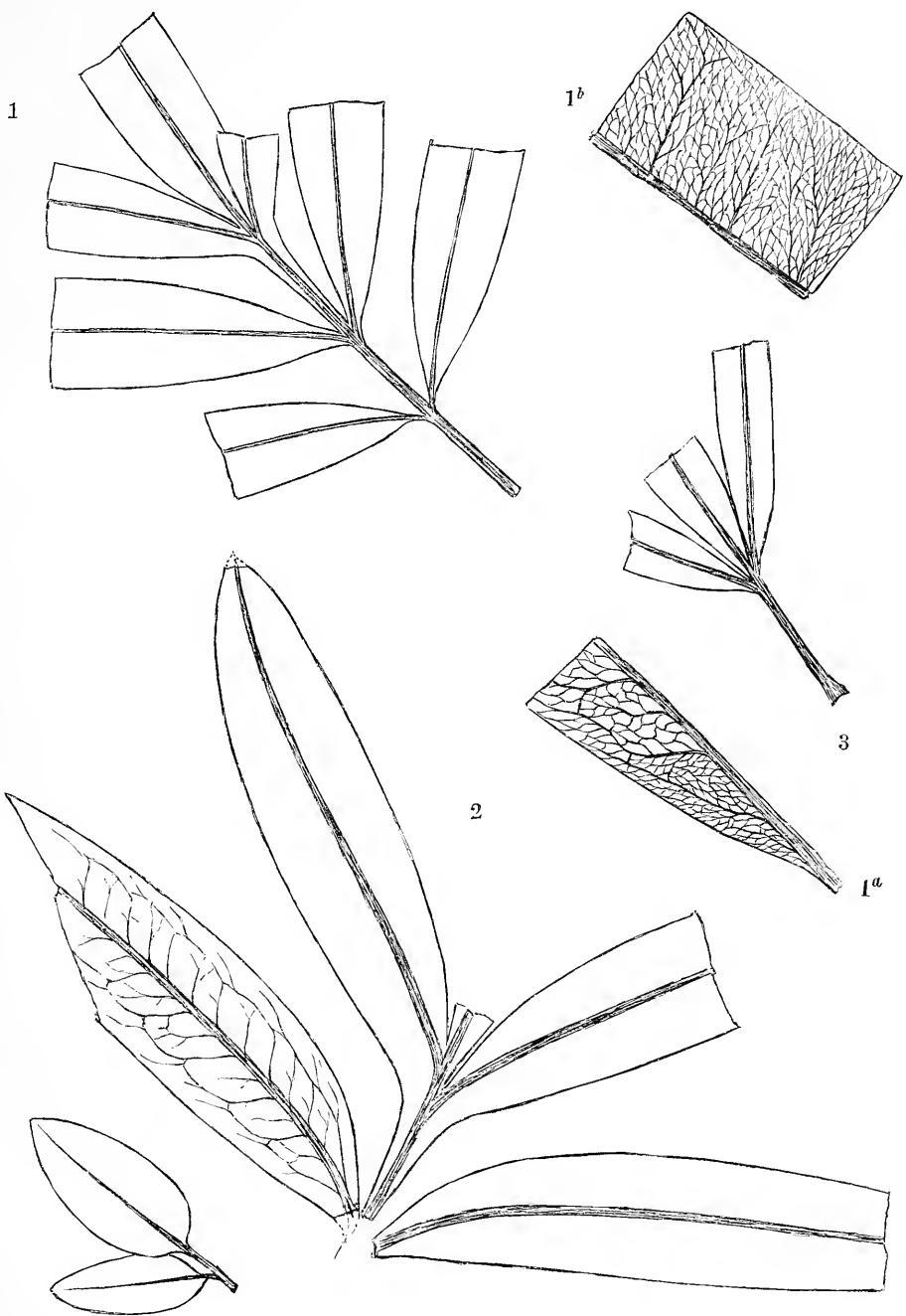


PLATE CLIV.

PLATE CLIV.

	Page.
FIGS. 1, 5. <i>SAPINDOPSIS MAGNIFOLIA</i> , sp. nov.....	297
1. Upper part of a small compound leaf.....	297
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FIG. 6. <i>SAPINDOPSIS PARVIFOLIA</i> , sp. nov	300
6. Upper part of a compound leaf.....	300

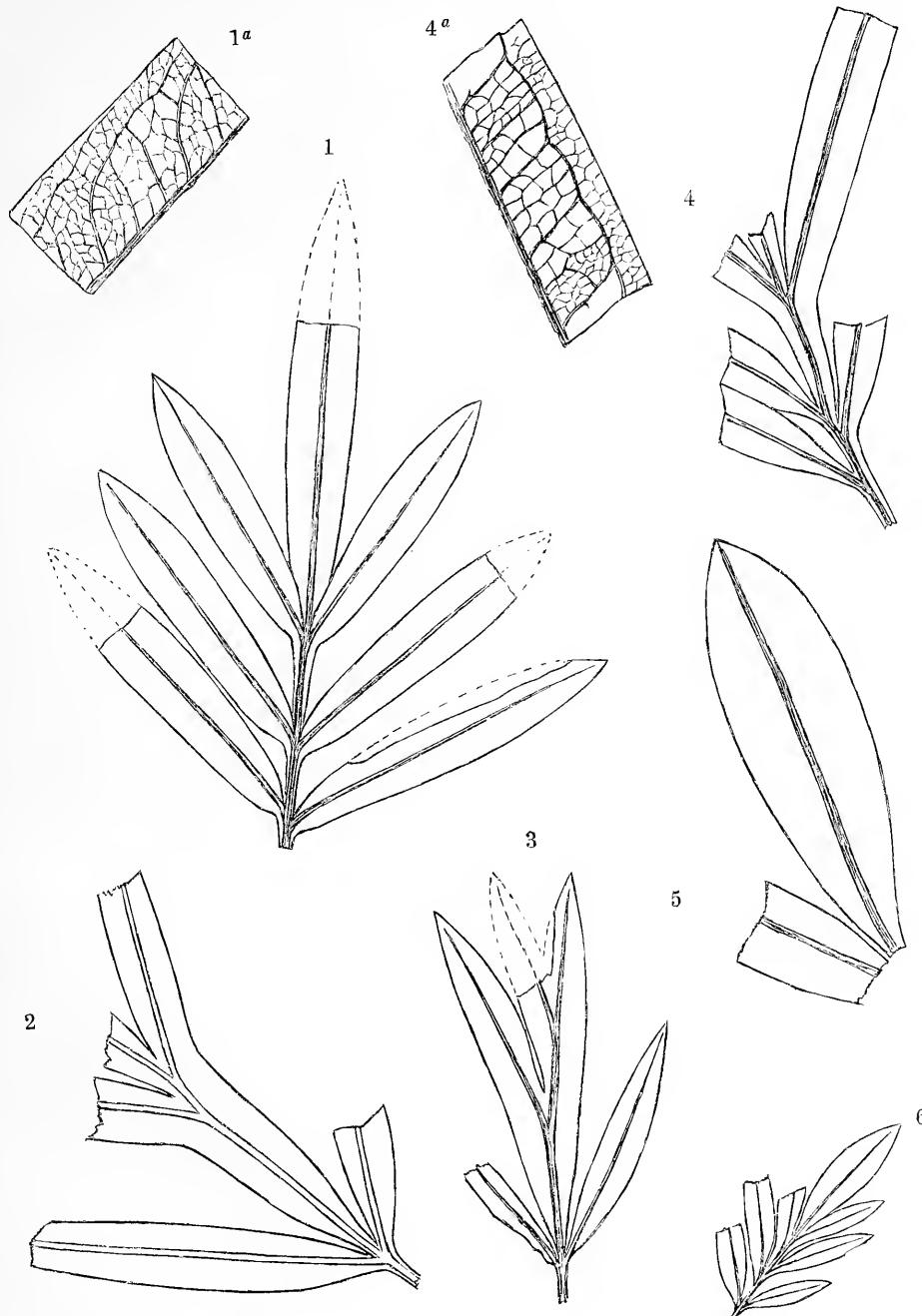


PLATE CLV.

P L A T E C L V.

	Page.
FIGS. 1, 7. <i>SAPINDOPSIS BREVIFOLIA</i> , sp. nov.	300
1. Upper part of a compound leaf.....	300
7. Portion of the upper part of a compound leaf.....	300
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9. Fragment of a leaf	311
9a. Portion of 9 magnified three diameters	311

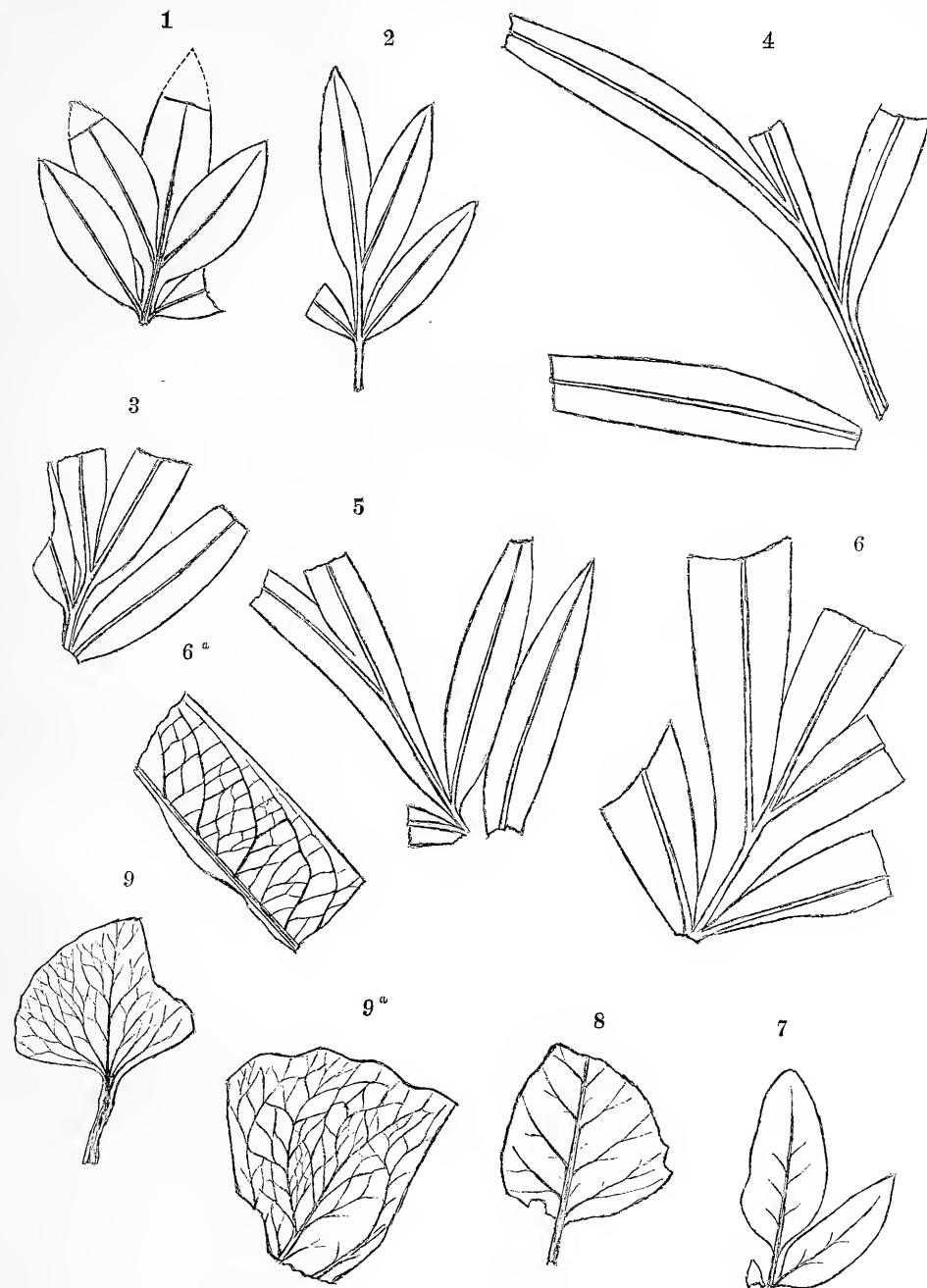


PLATE CLVI.

P L A T E C L V I .

	Page.
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1. Small fragment of a leaf	292
FIG. 2. <i>PROTEOPHYLLUM TENUINERVE</i> , sp. nov.	286
2. Small fragment of a leaf	286
FIG. 3. <i>POPULOPHYLLUM RENIFORME</i> , sp. nov.	311
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4. Small fragment of a leaf	282
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8 ^a . Portion of 8 magnified three diameters	305
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12. Fragment of a leaf	290
FIG. 13. <i>SAPINDOPSIS OBTUSIFOLIA</i> , sp. nov.	301
13. Small portion of a leaf	301

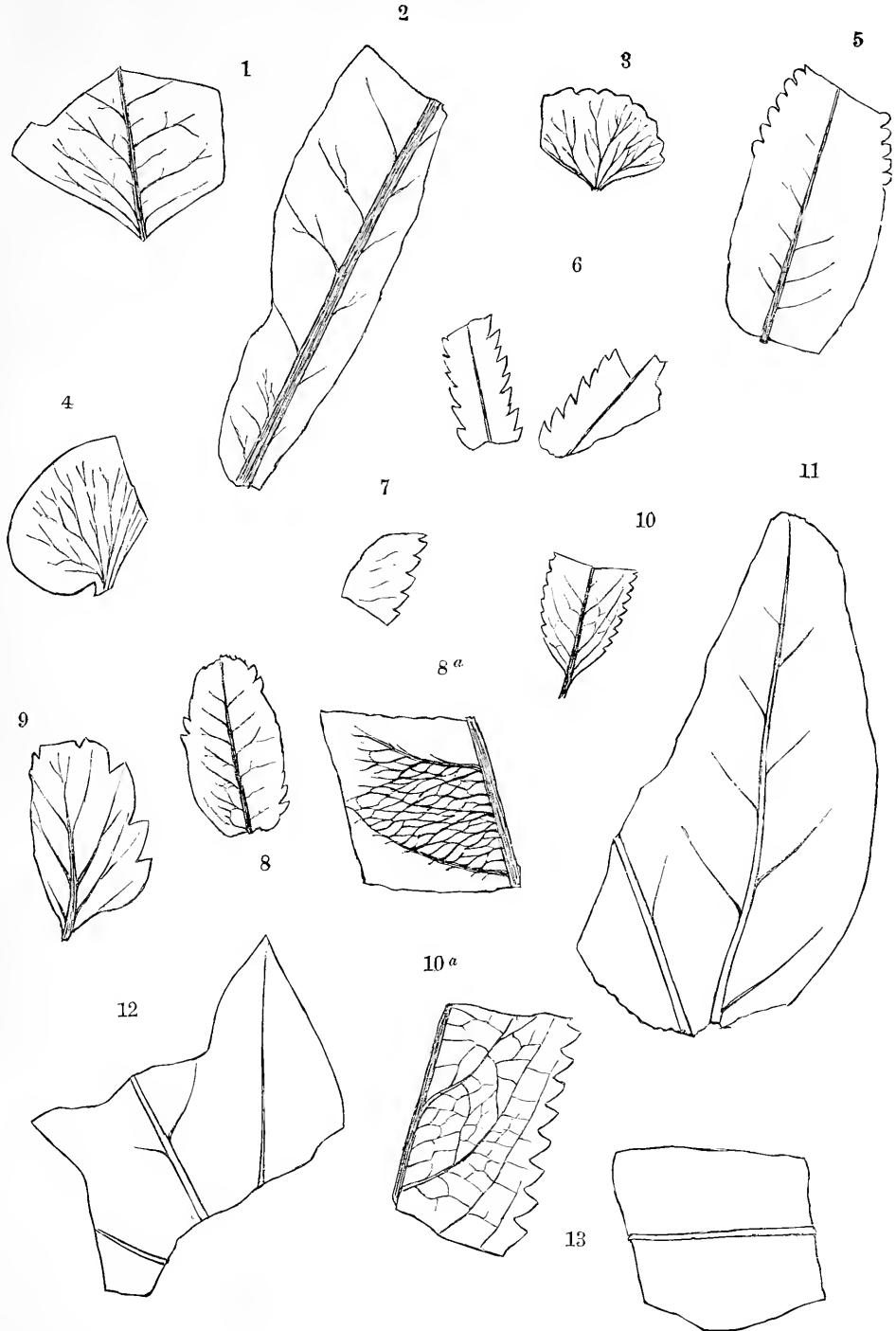


PLATE CLVII.

P L A T E C L V I I.

	Page.
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6 ^a . Portion of 6 magnified three diameters	315
FIG. 4. <i>FICOPHYLLUM CRASSINERVE</i> , sp. nov	291
4. Tip of a leaf	291

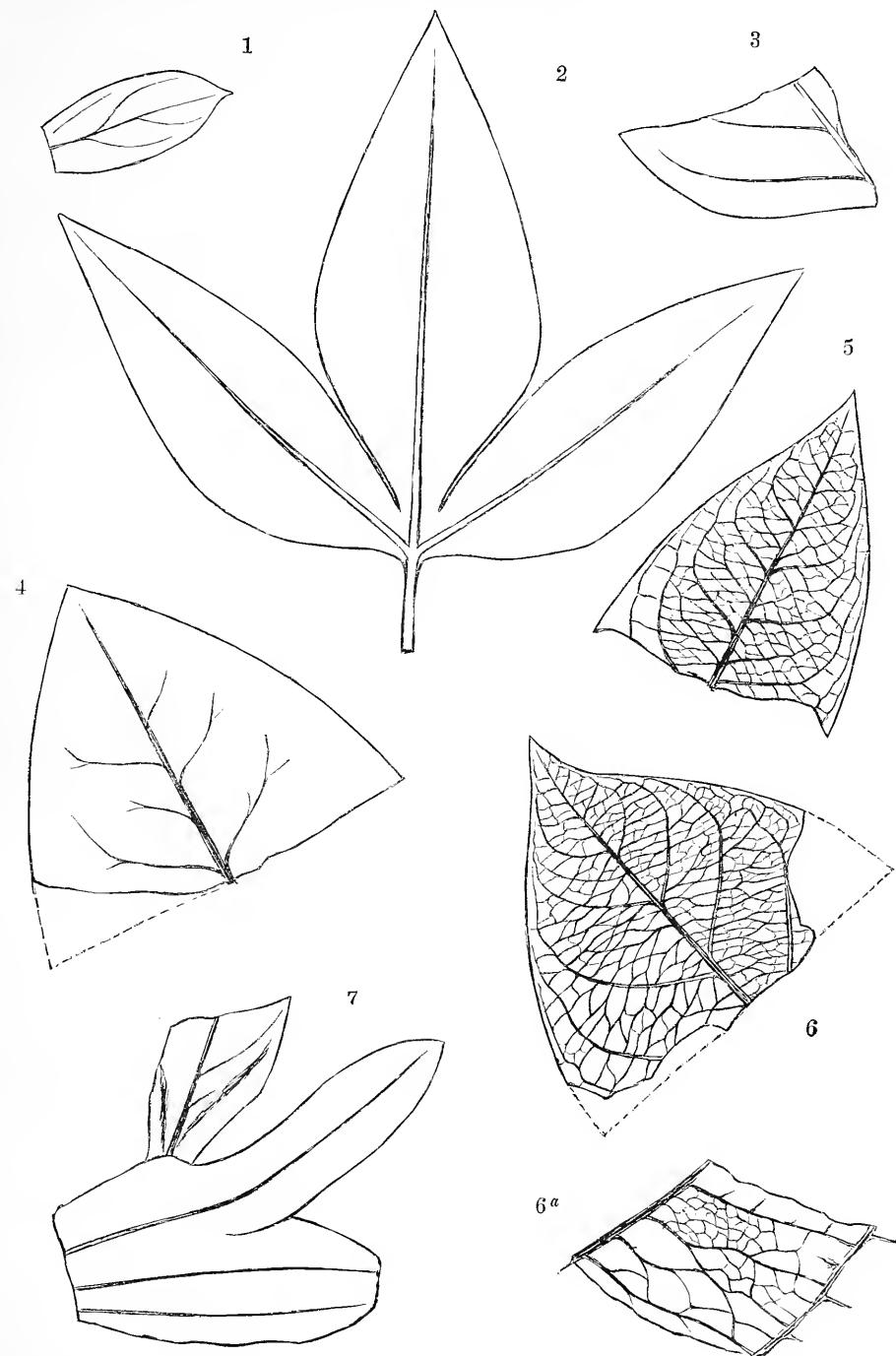


PLATE CLVIII.

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	1 ^a . Portion of 1 magnified three diameters.....	313
FIGS.	2, 3. <i>STERCULIA ELEGANS</i> , sp. nov.	314
	2. Fragment of a large leaf	314
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FIG.	4. <i>POPULOPHYLLUM CRASSINERVE</i> , sp. nov.	312
	4. Fragment of a large leaf	312
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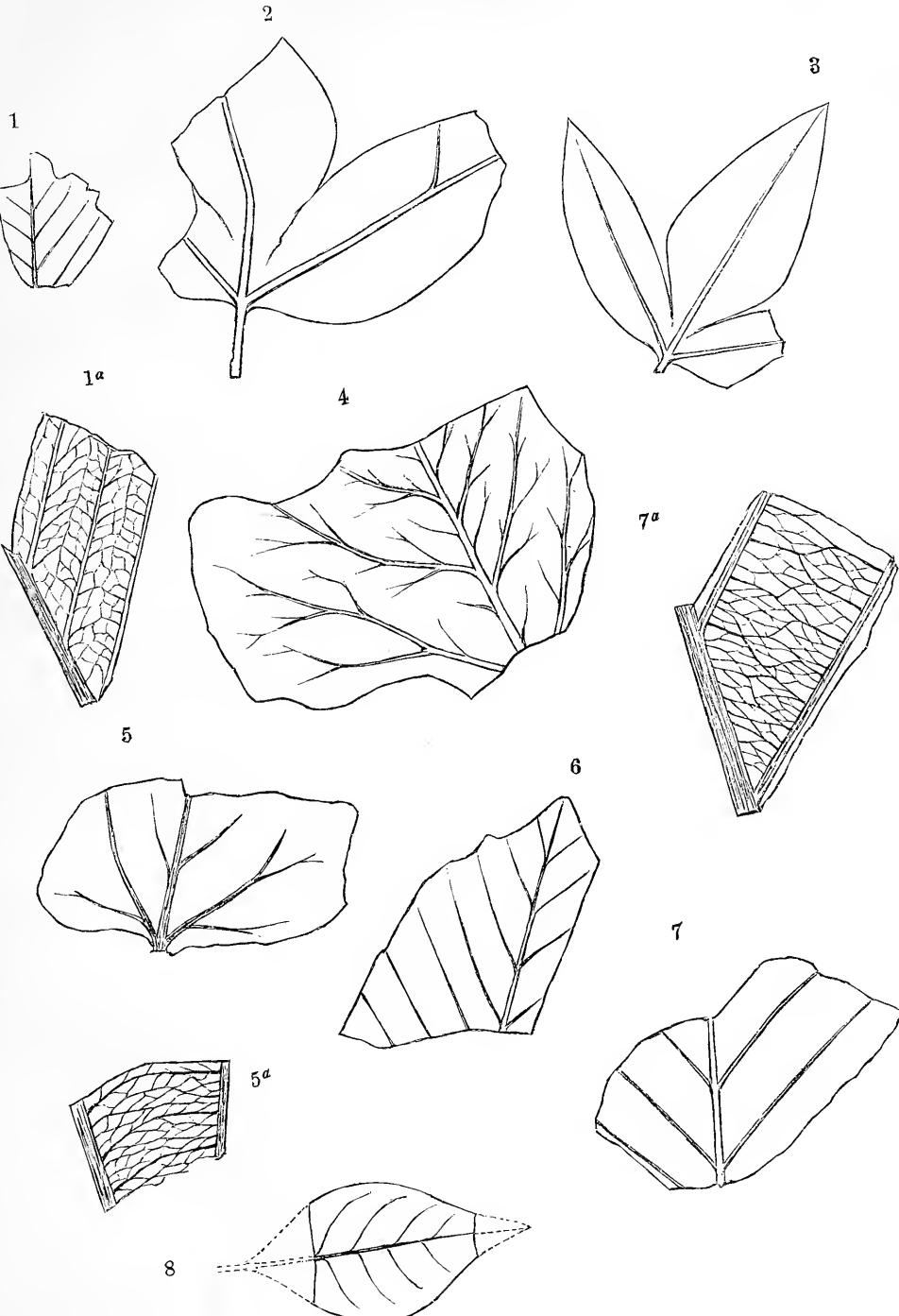


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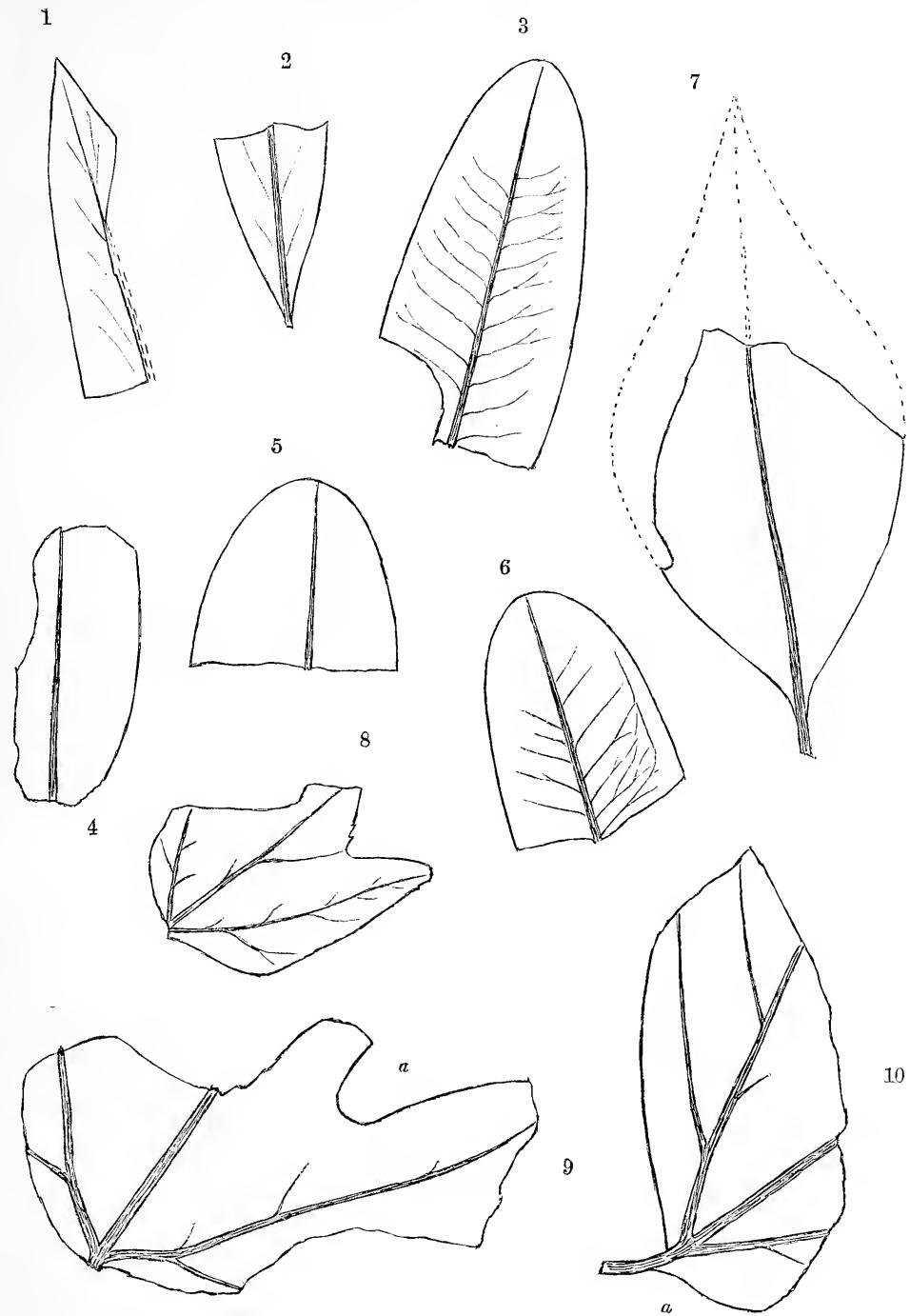


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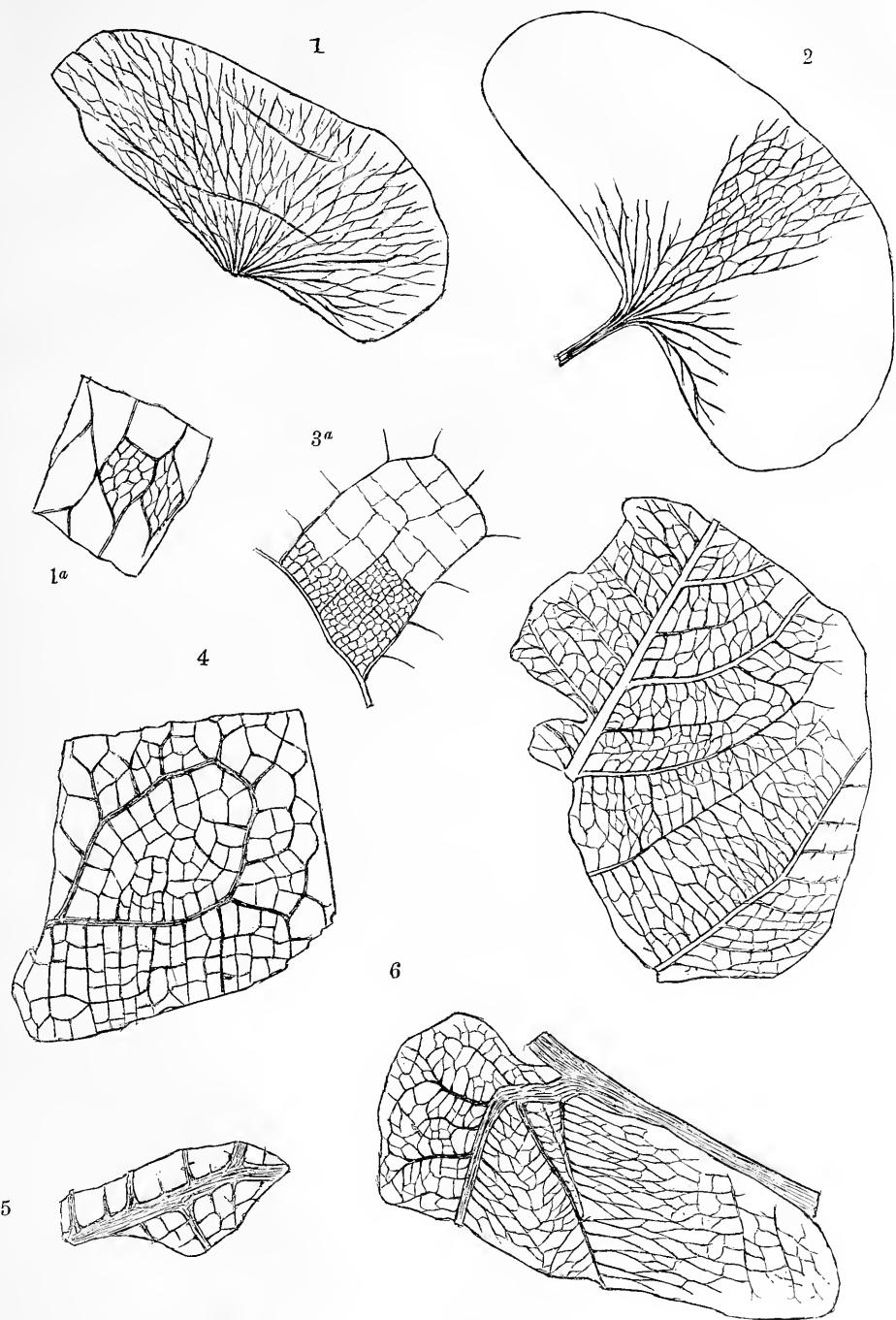


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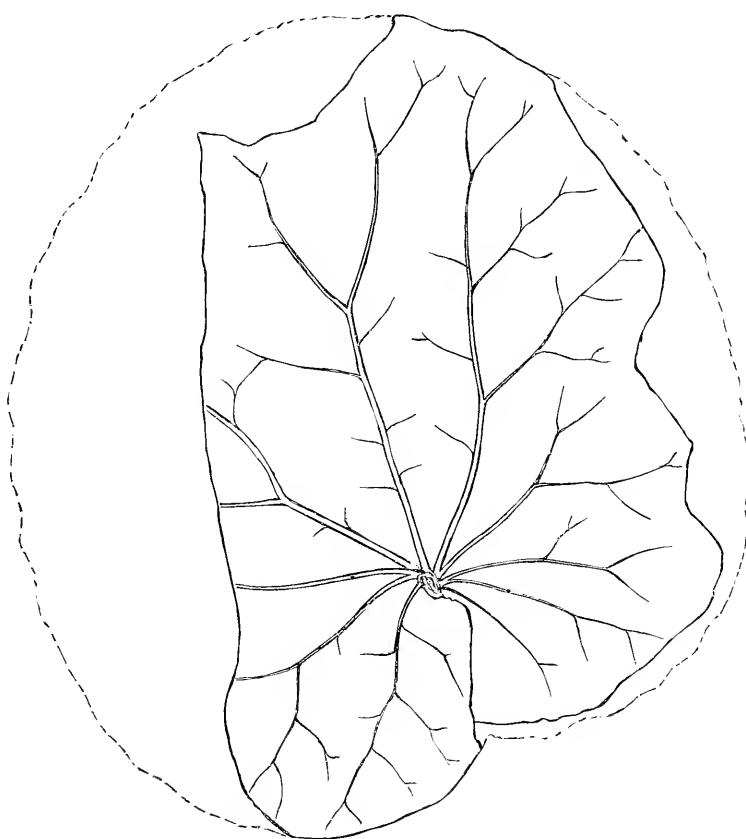
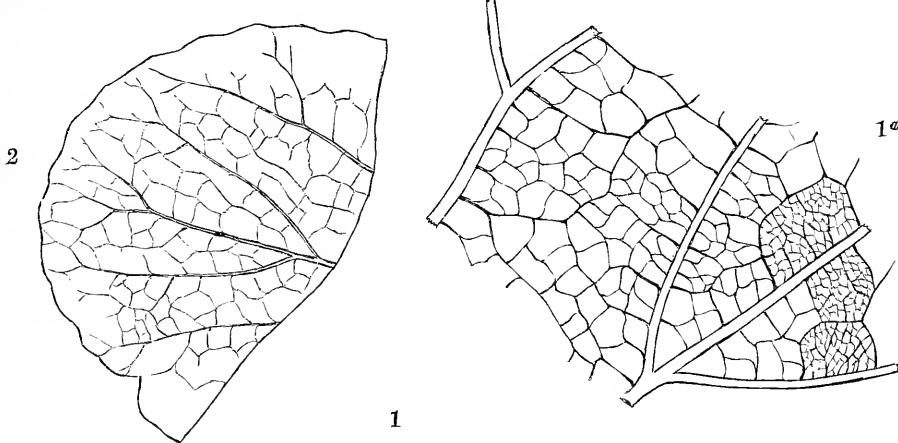
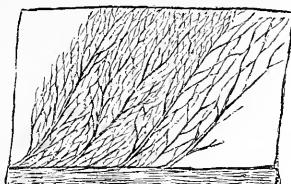


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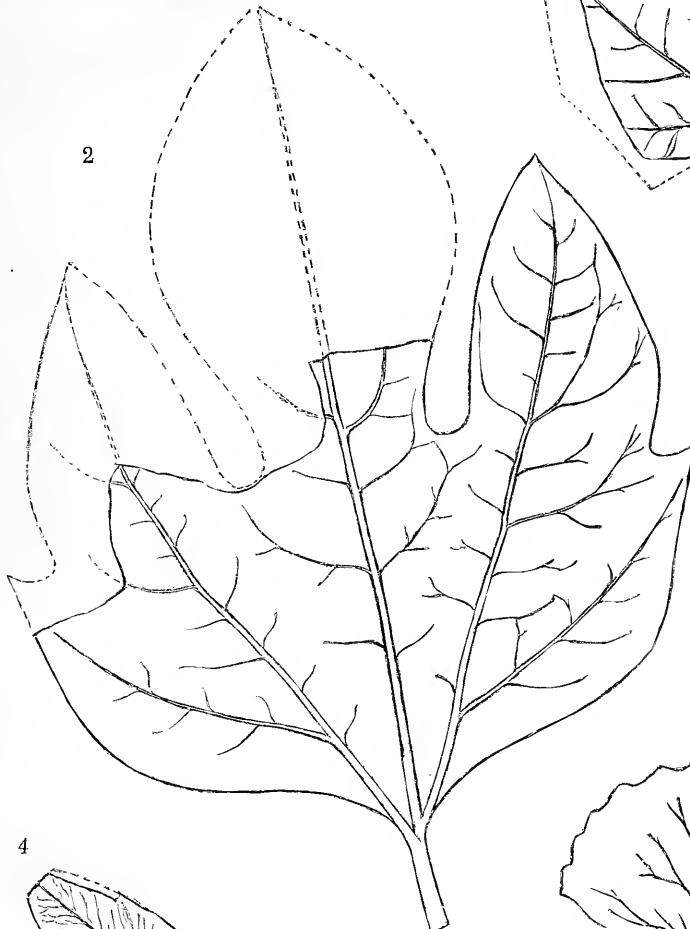
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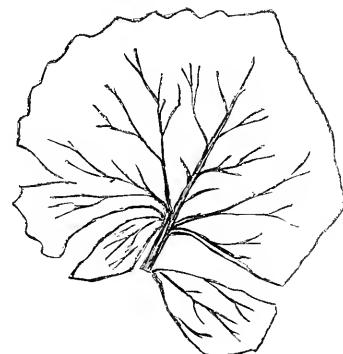
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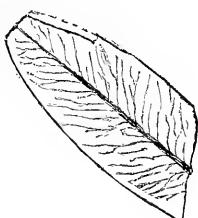


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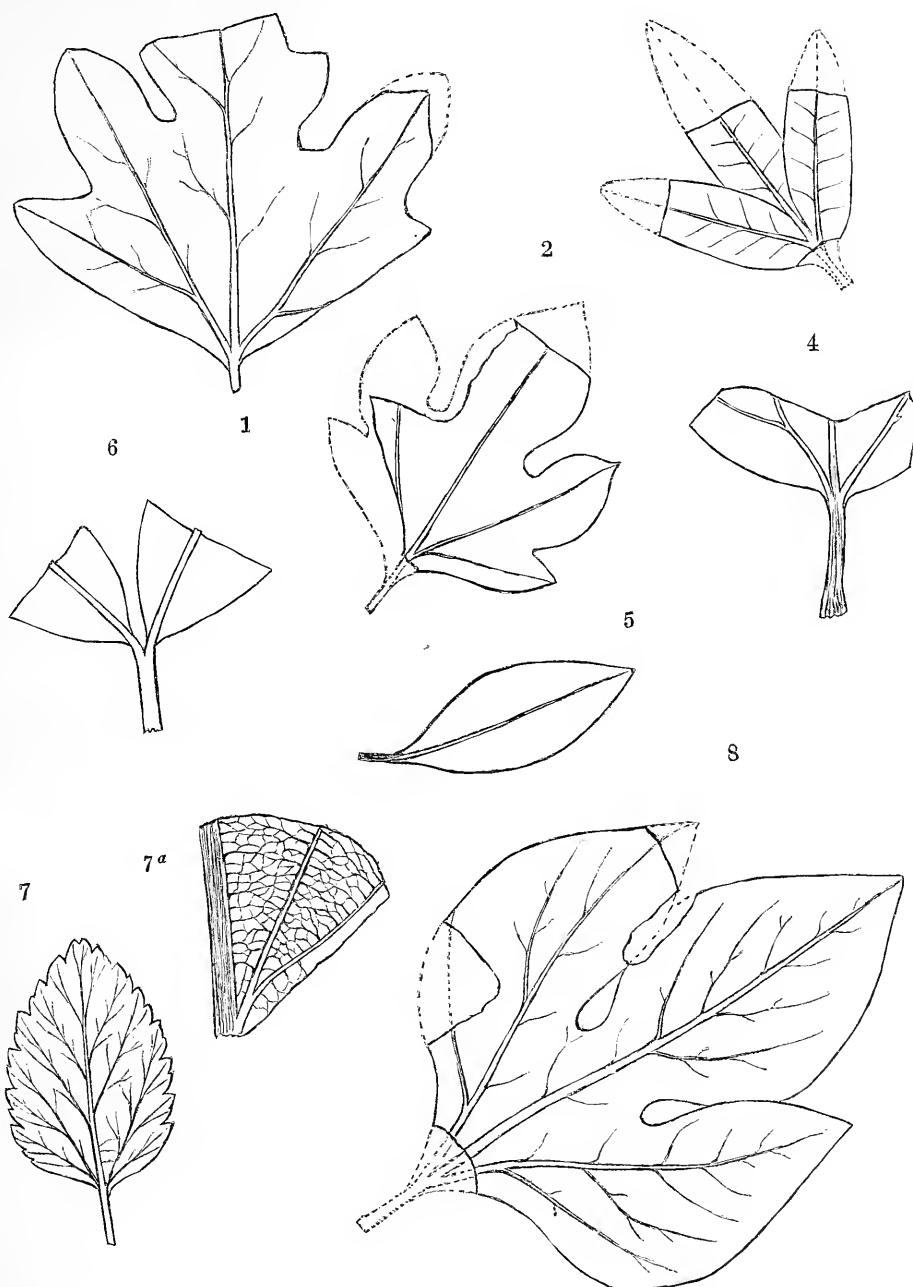


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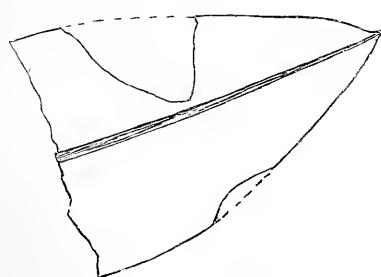
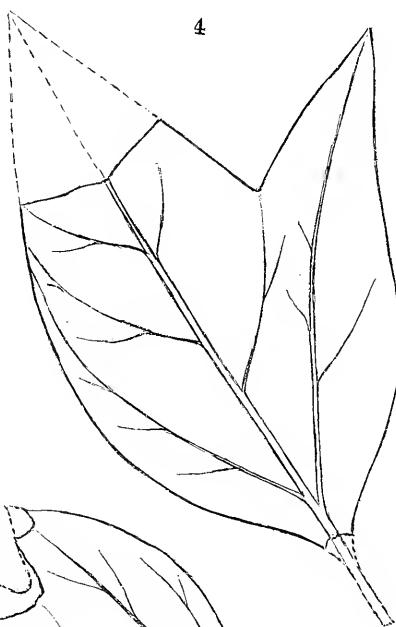
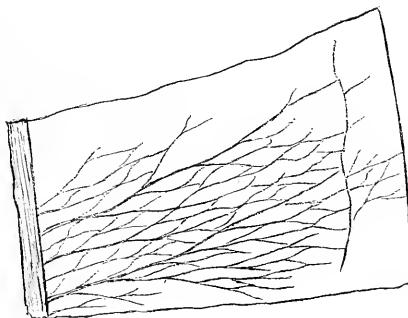
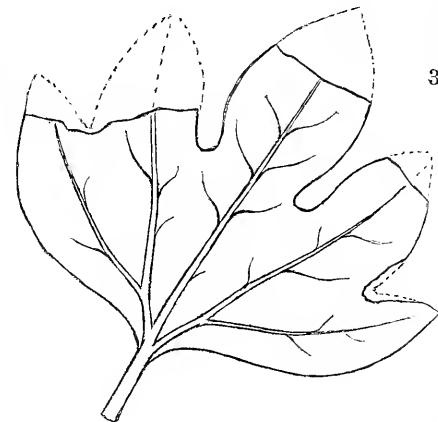
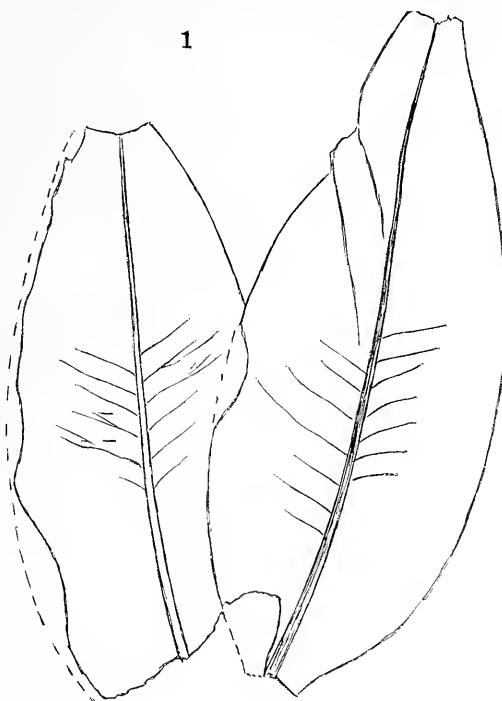


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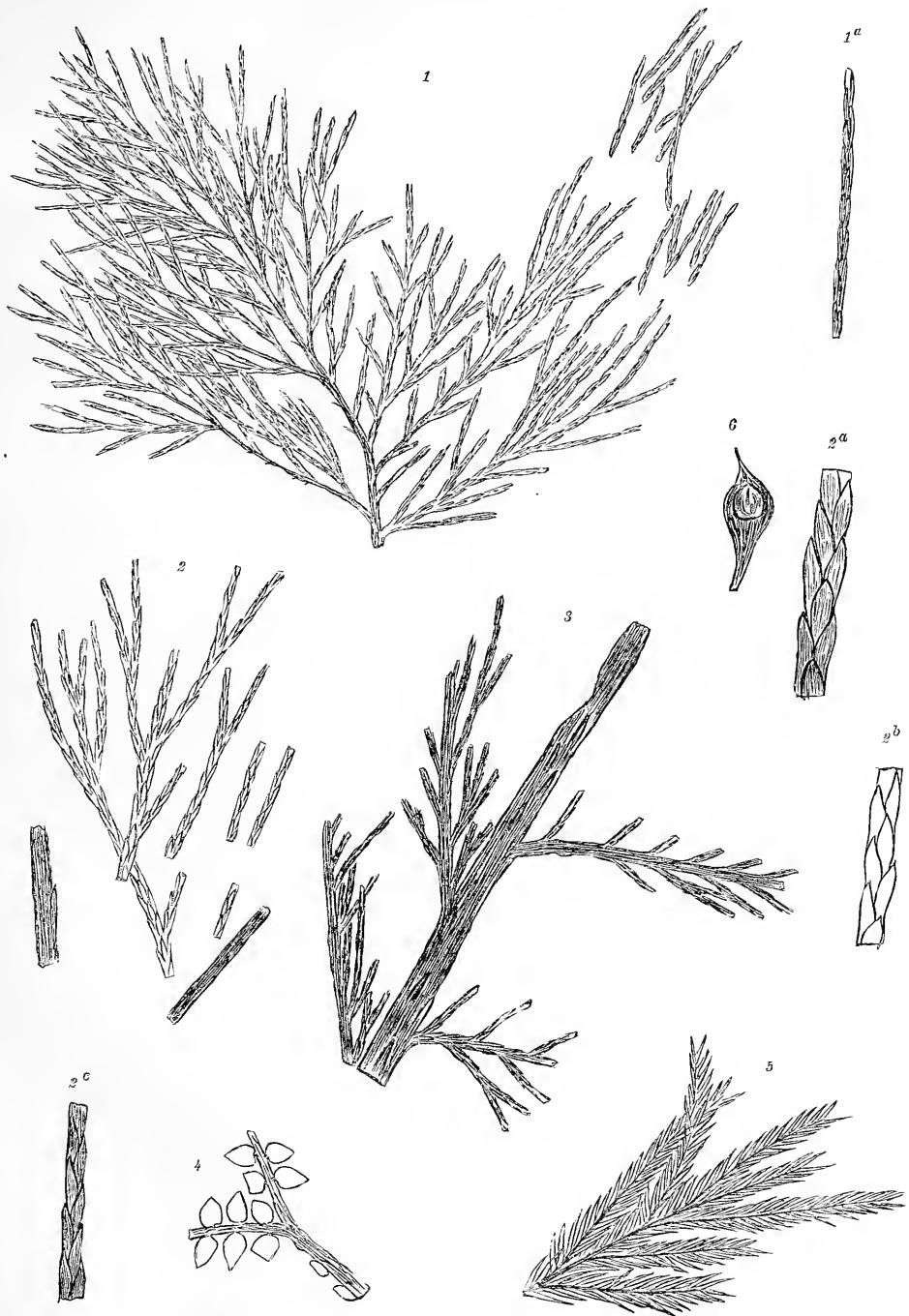


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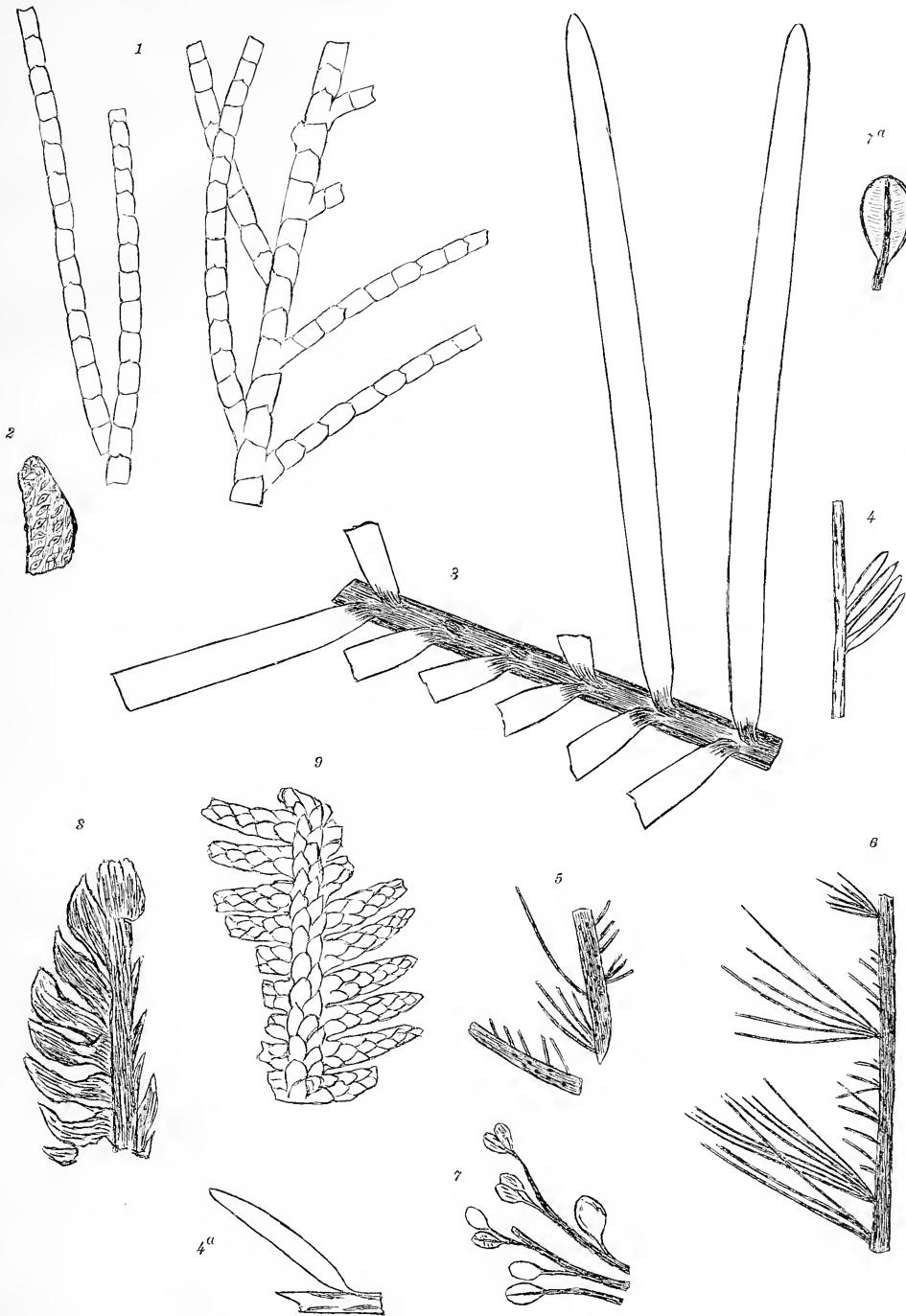


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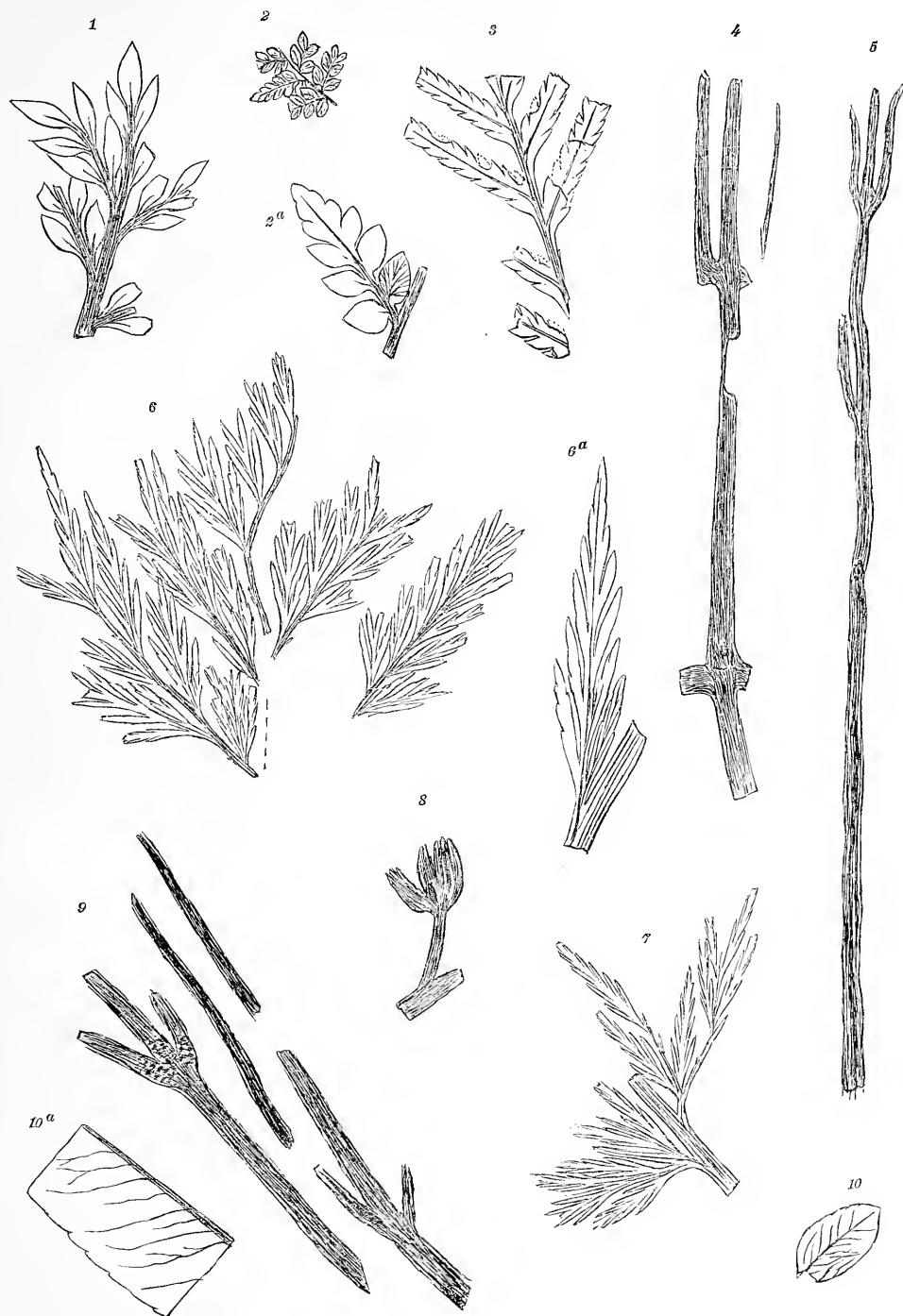


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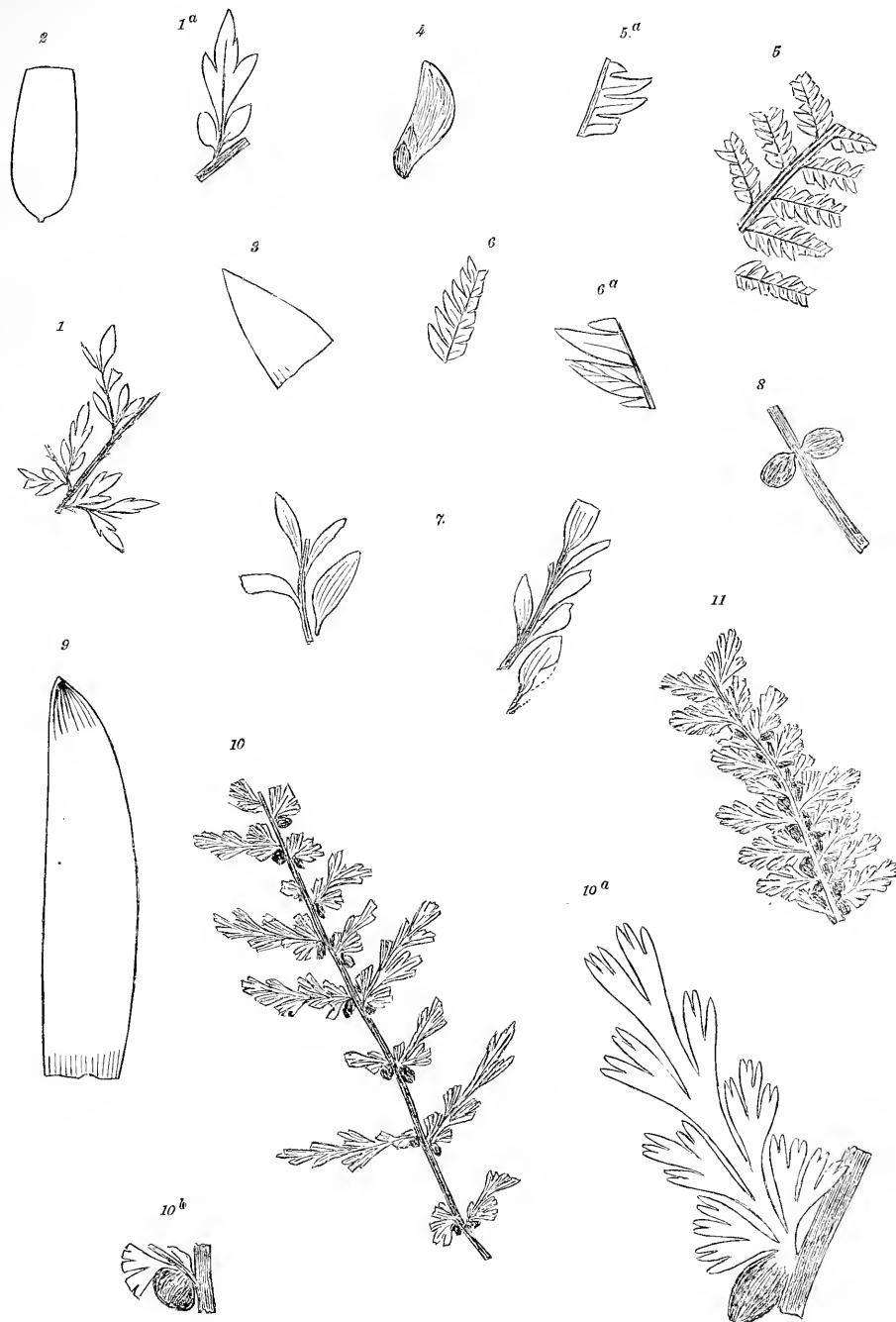


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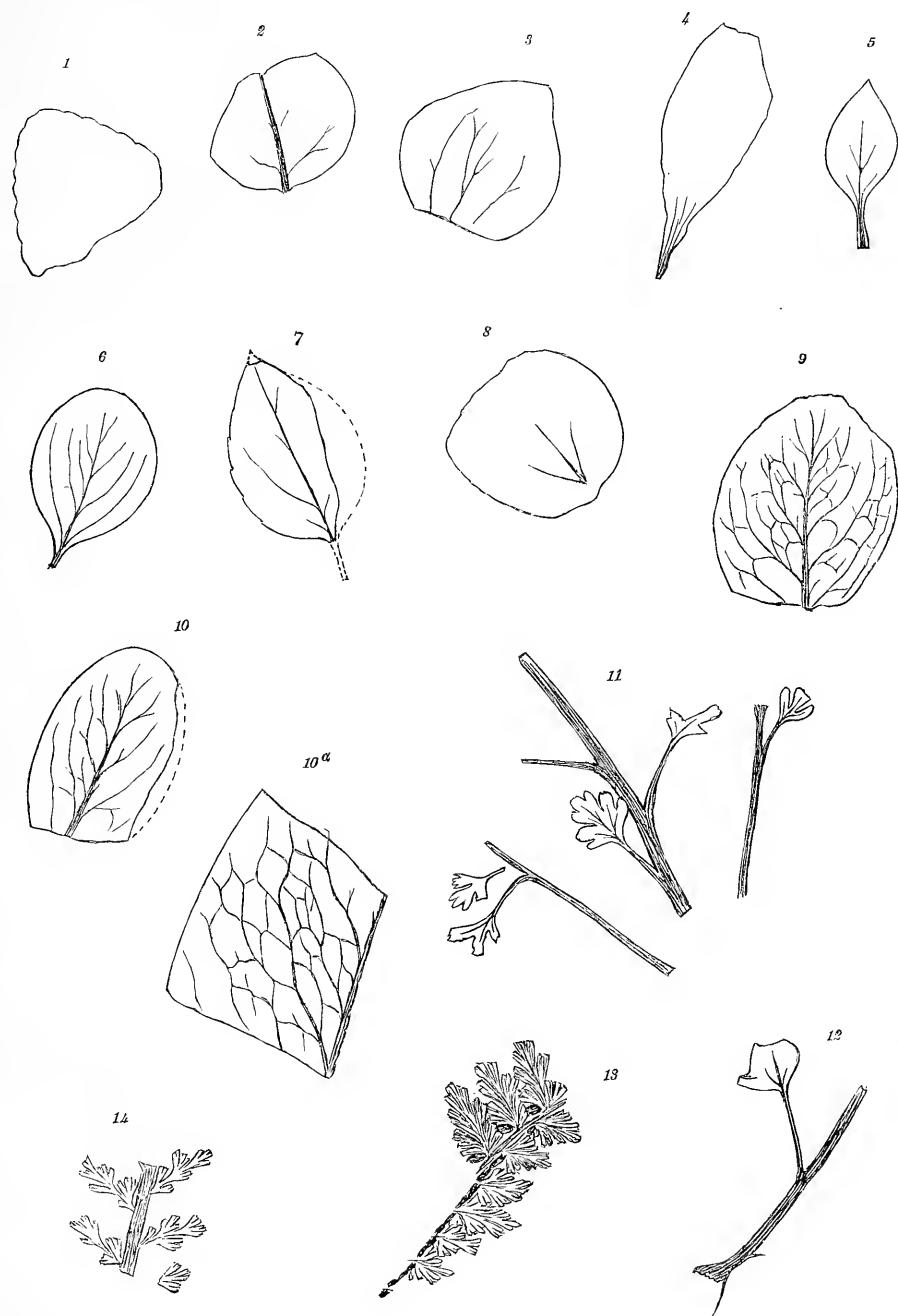
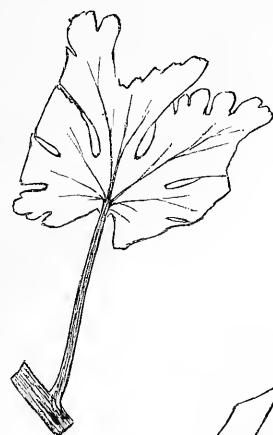


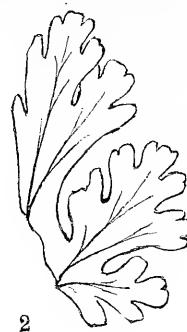
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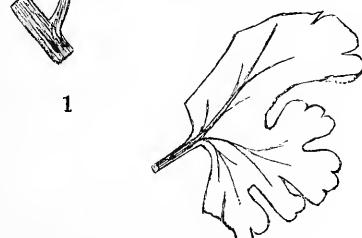
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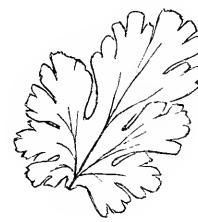
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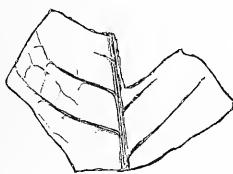
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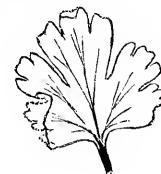
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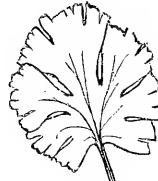
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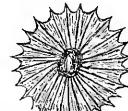
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8



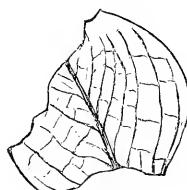
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11^a

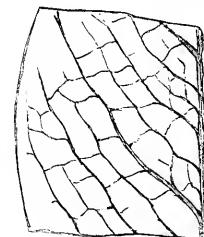
11



12



13

13^a

14

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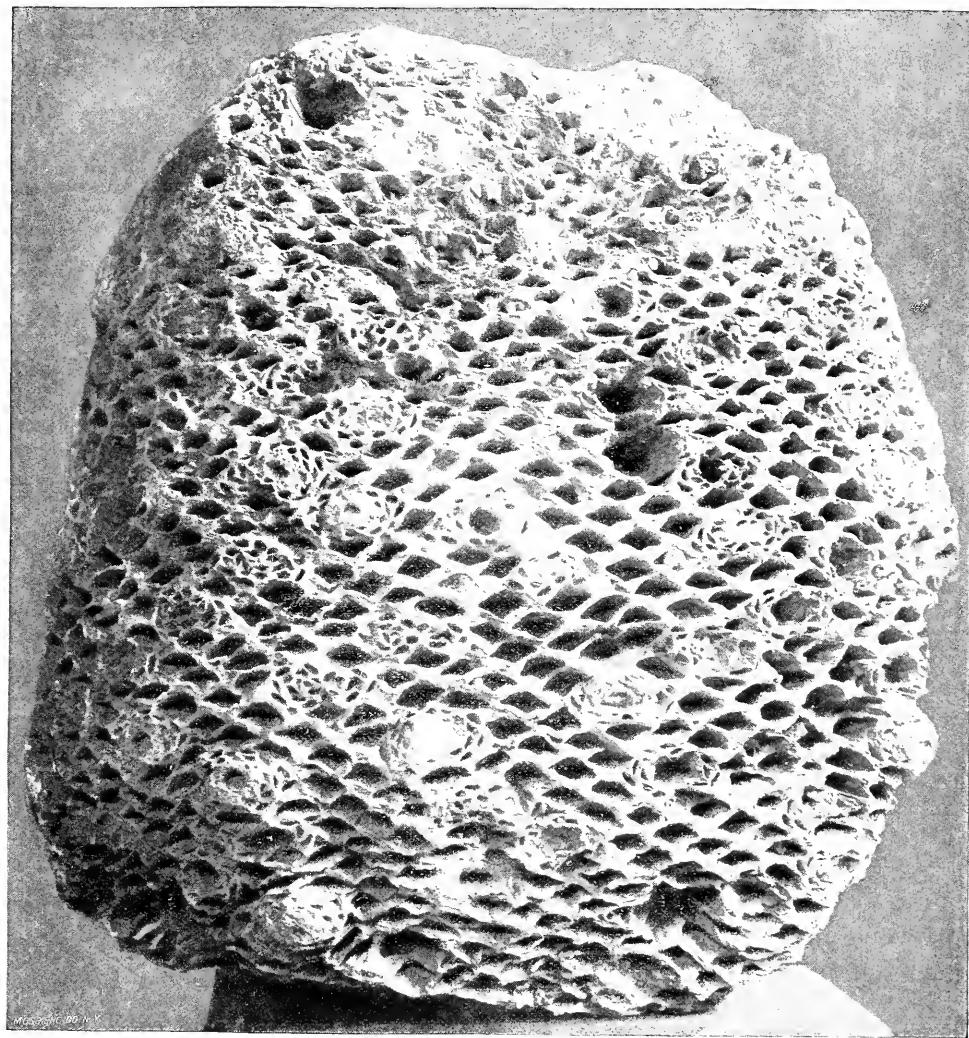


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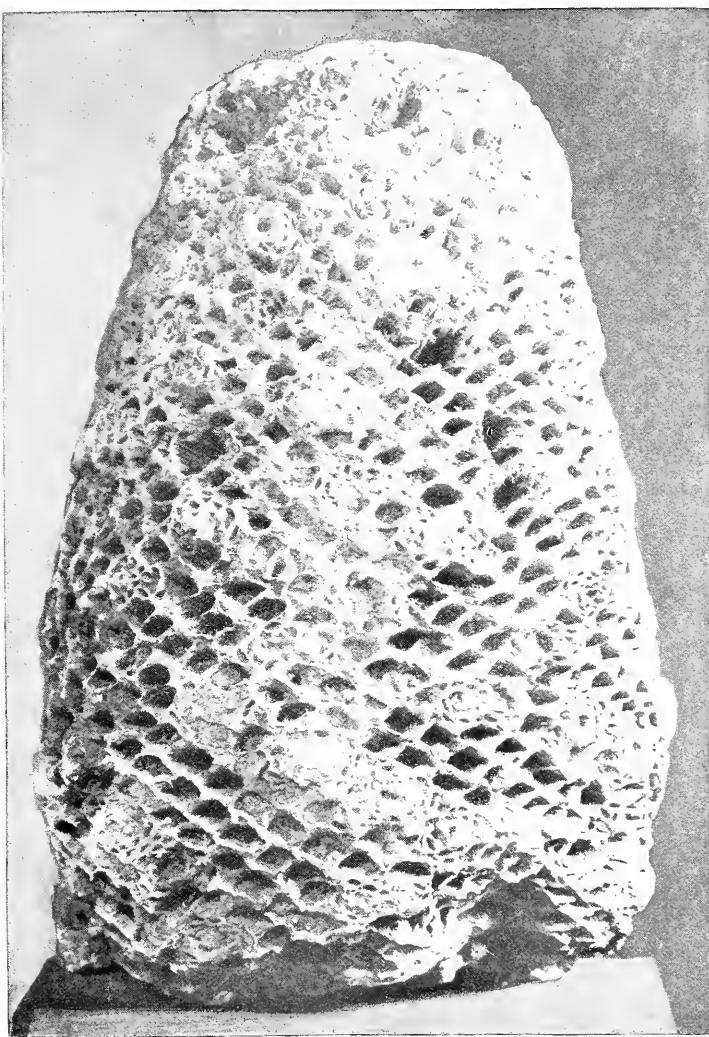


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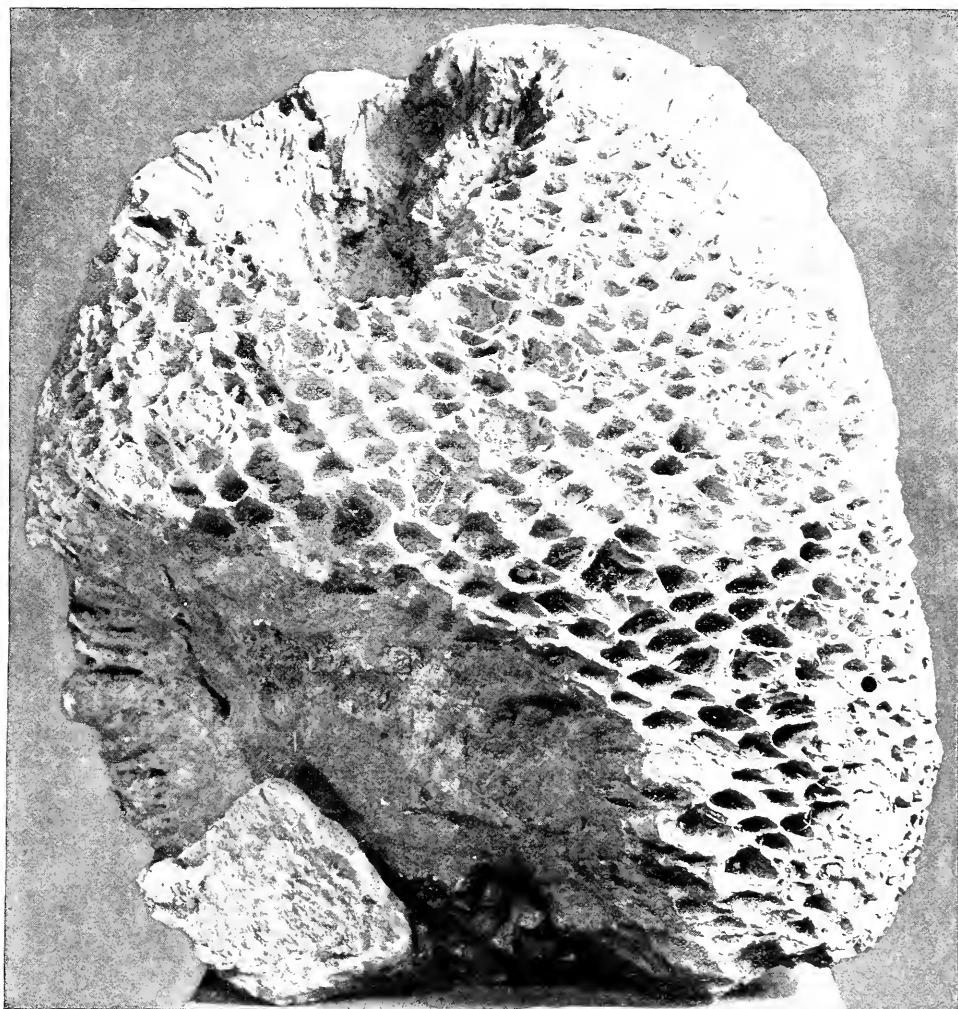


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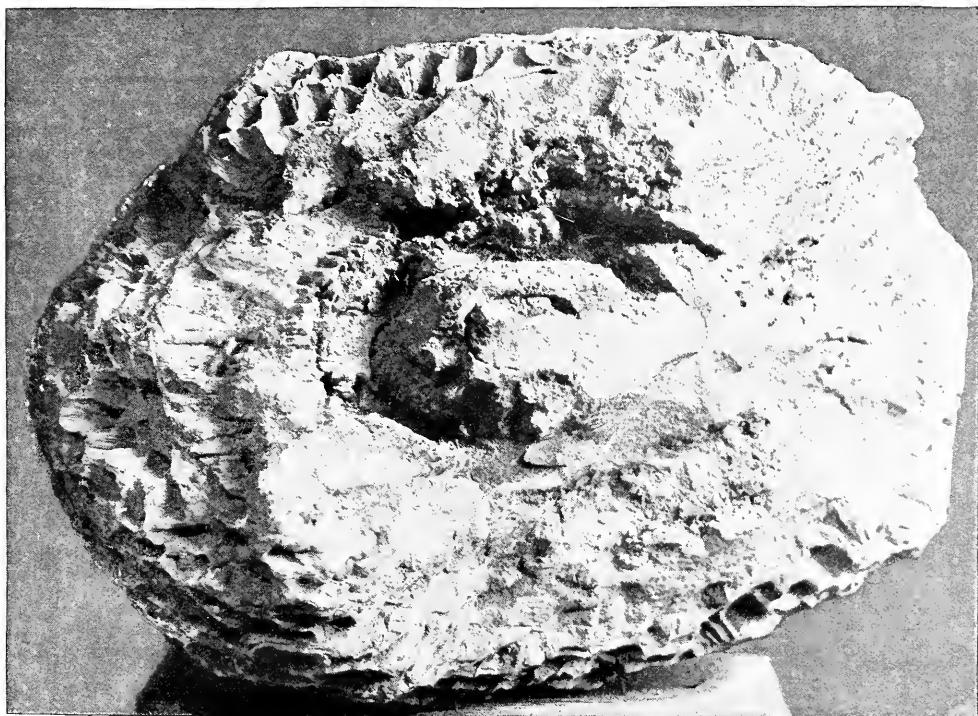


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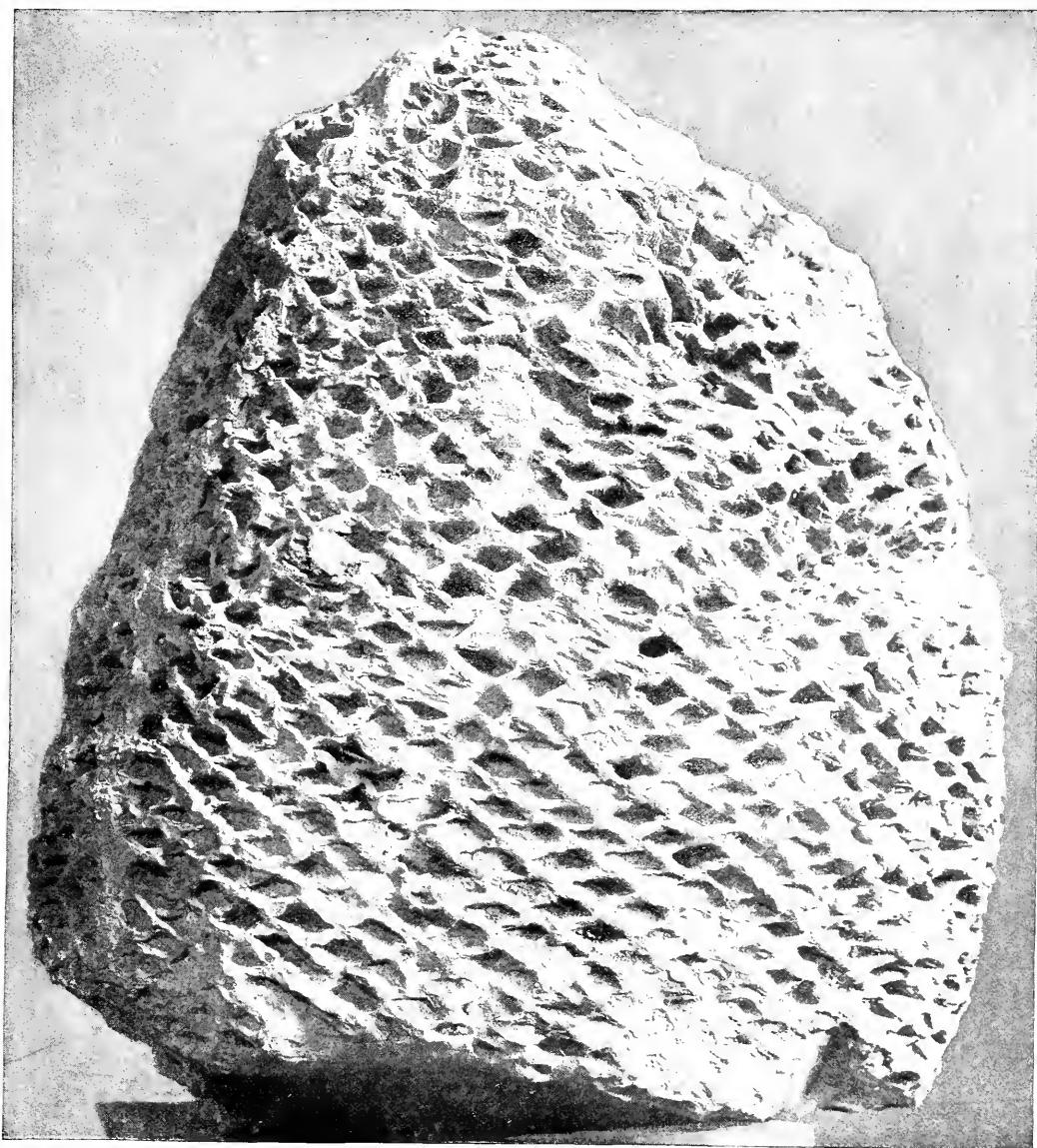


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